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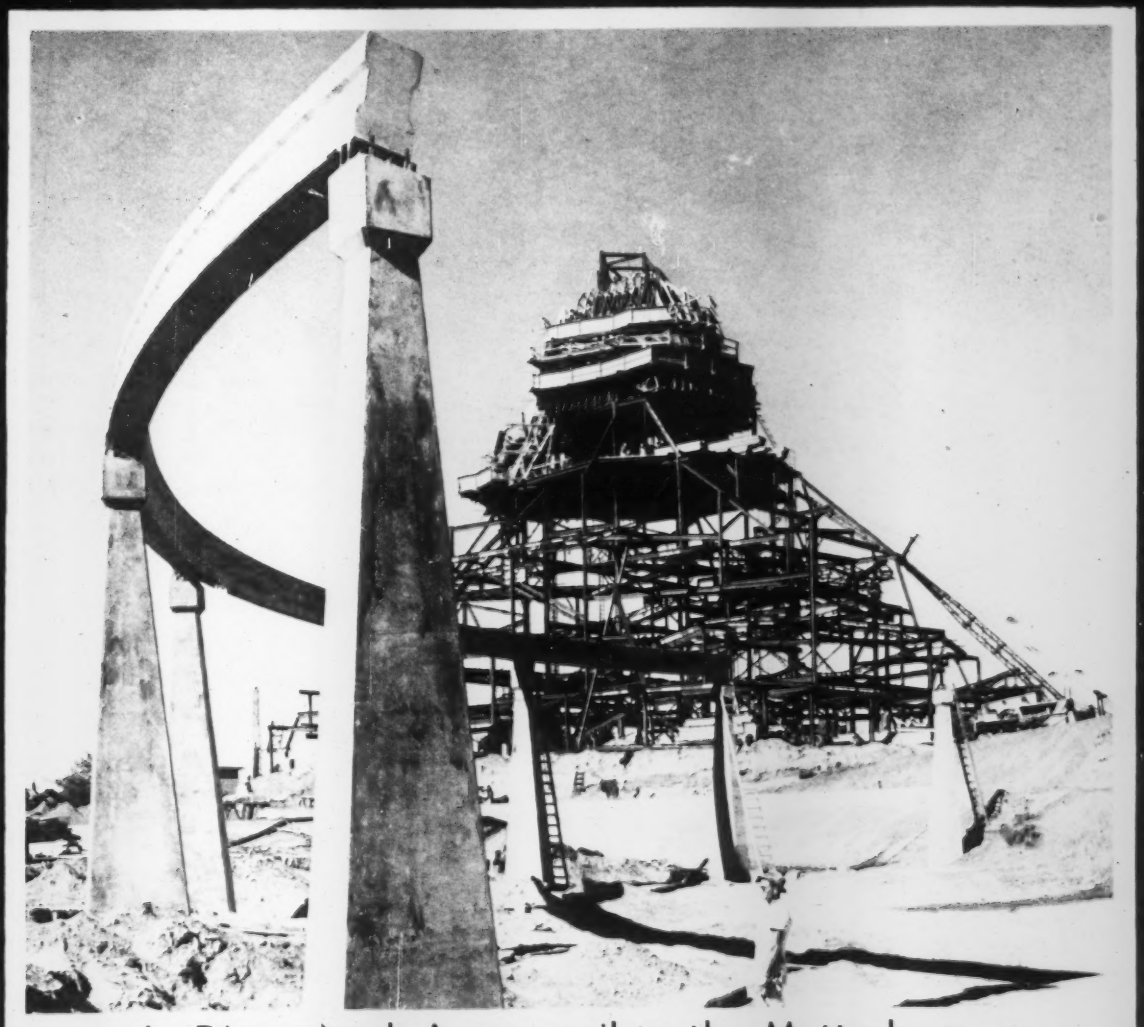

At Disneyland: A monorail to the Matterhorn p.34

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This highway bridge replaced a narrow and dangerous truss-type bridge on State Route 123 in Ohio. Two concrete-capped bents of 10 Armco Pipe Piles on each end support the bridge floor. Armco FLEX-BEAM™ Guardrail has been installed as bridge rail.

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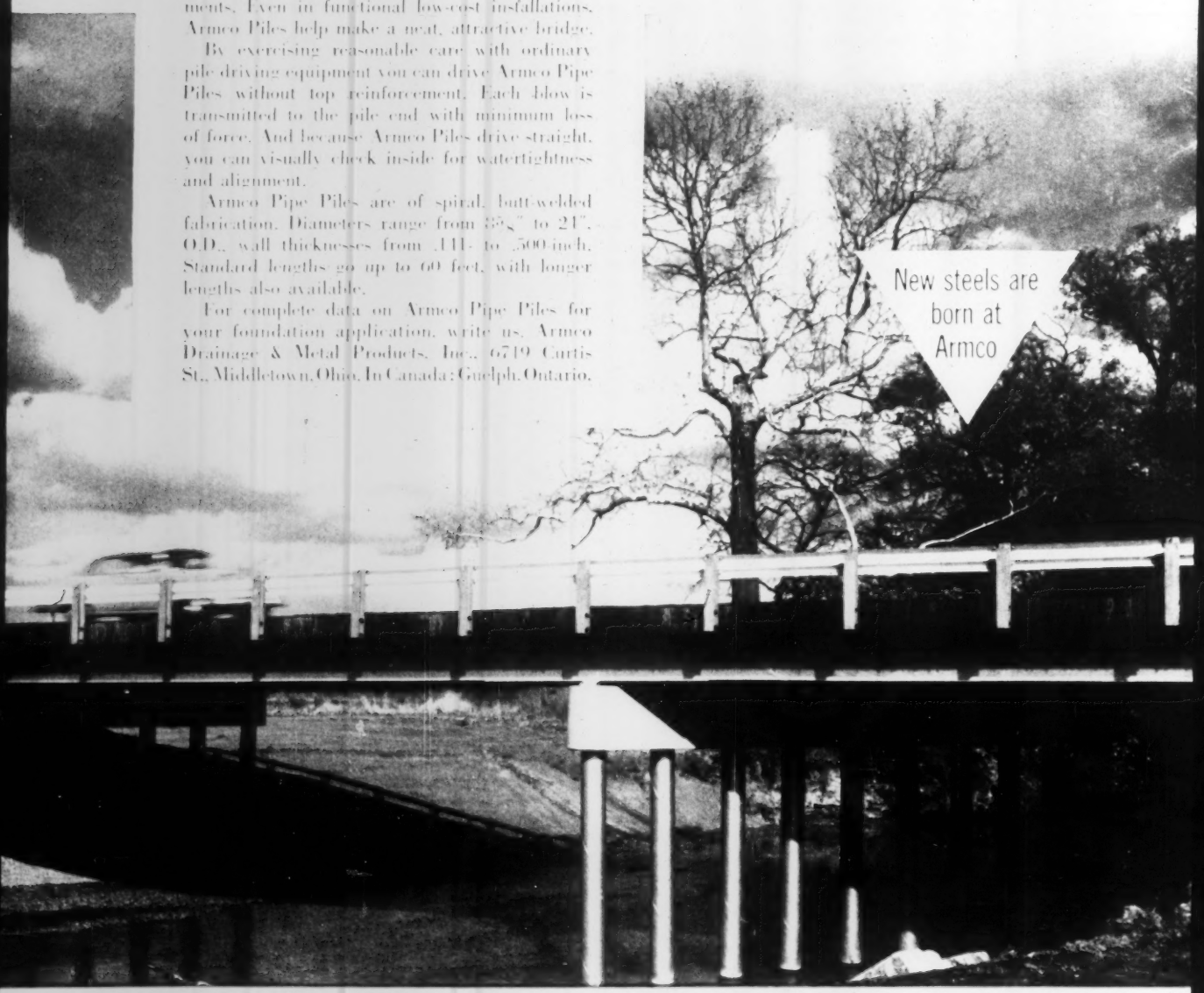
Armco Pipe Piles are of spiral, butt-welded fabrication. Diameters range from 3½" to 24" O.D., wall thicknesses from .111- to .500-inch. Standard lengths go up to 60 feet, with longer lengths also available.

For complete data on Armco Pipe Piles for your foundation application, write us. Armco Drainage & Metal Products, Inc., 6719 Curtis St., Middletown, Ohio. In Canada: Guelph, Ontario.



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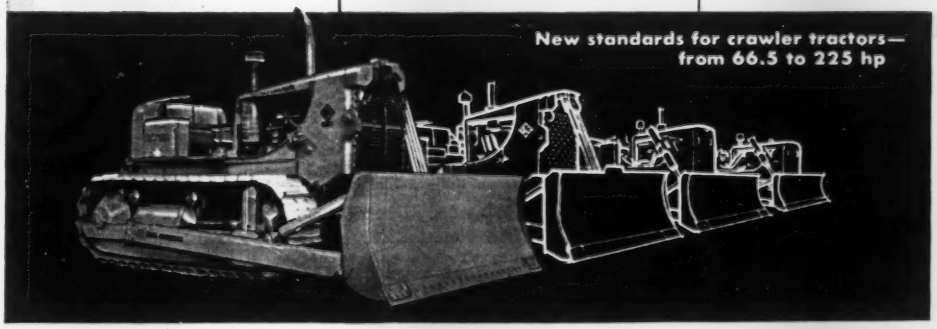
How to get more tractor for your dollar

In the chart below are five important crawler tractor advantages. These features have earned recognition by all makers of crawler tractors—one or more are now included in their latest designs. It stands to reason that the more of them you get on your next crawler, the more it is worth to you.

Advantage	What it means to you	Where you get it
All-steel main frames	Power train protection Better equipment mounting Better weight distribution	Allis-Chalmers is the only manufacturer offering main frames in *all* models. Two other manufacturers now offer them in one model.
Permanent lubrication of truck wheels, idlers and support rollers	No more wasted time greasing these track components	Allis-Chalmers is the only manufacturer offering permanent lubrication of truck wheels, idlers and support rollers on *all* models. One other manufacturer offers permanent lubrication on three models.
Torque converter drive	Matches power to load automatically Transmits power smoothly Less shifting	Allis-Chalmers pioneered it in crawler tractors in 1940 . . . offers it in two tractor shovel models, two tractor models. All other major manufacturers now offer it as optional equipment in one or more models.
Double reduction final drives	More clearance Longer gear life	Allis-Chalmers is the only manufacturer offering double reduction final drives on *all* models. One other manufacturer offers it on three models.
True unit construction	Faster service Easier access to all major assemblies	Allis-Chalmers is the only manufacturer offering true unit construction in *all* its models. Two other manufacturers now offer modified unit construction in part of their lines.



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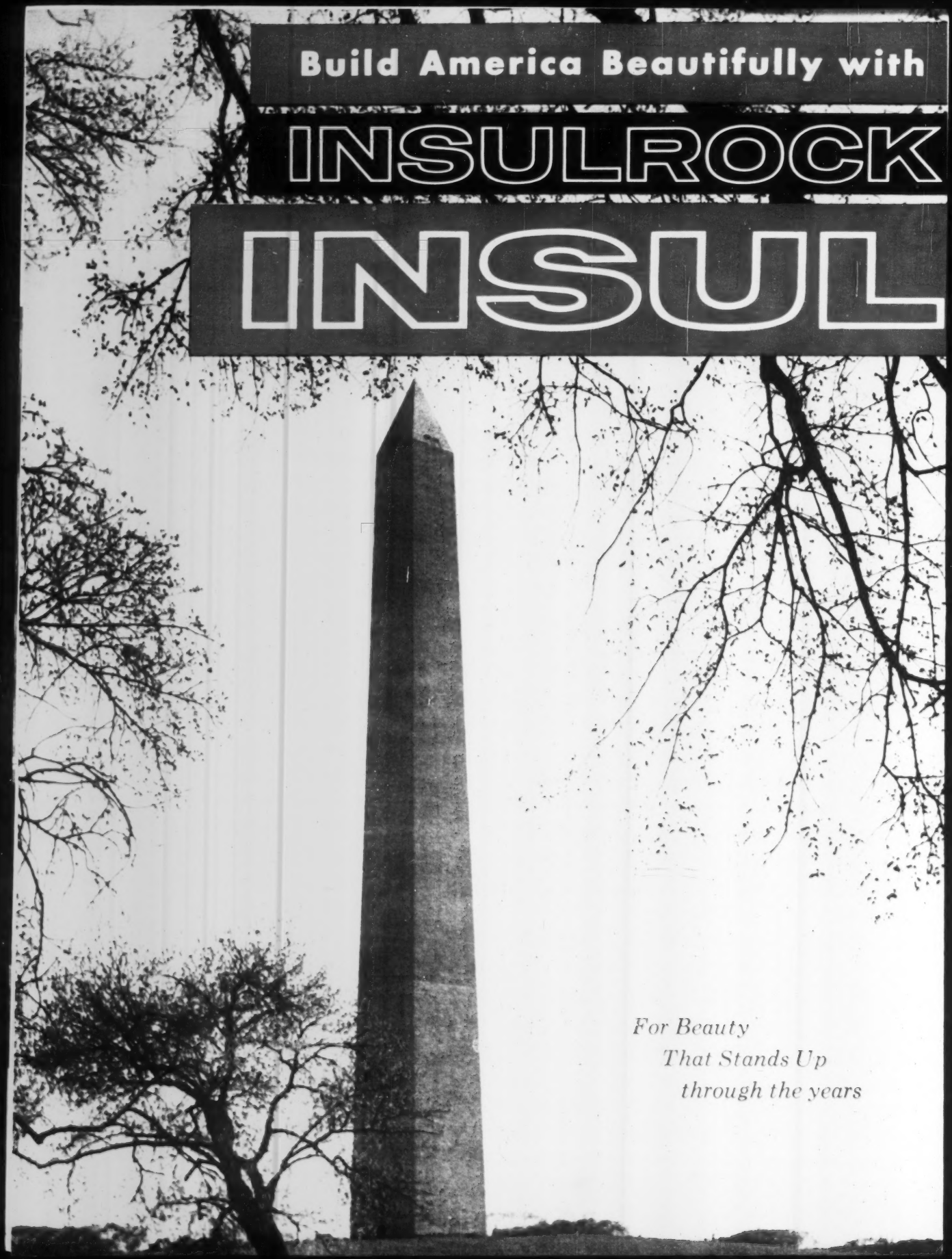
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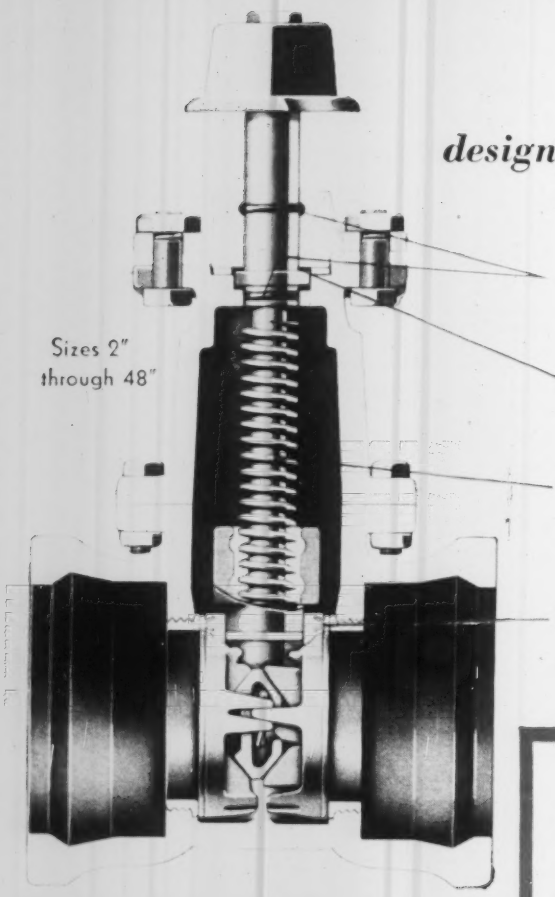

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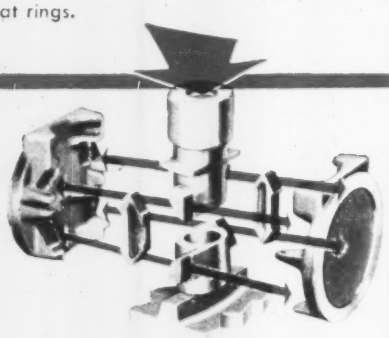
Bronze Disc Rings . . . are dovetailed to become part of the disc and are then machined for precise mating with the seat rings.



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Four Point Wedging Mechansim . . . exerts even pressure at four points near the outer edge of each disc to eliminate disc deflection and distortion and to assure tight shut-offs.

Exclusive Disc Movement . . . discs move in an inverted "T" manner, as shown, when valve is opened or closed. The entire disc and wedging mechanism is held together as a unit by special bronze pins passing through interlocking lugs that are cast integrally with each disc. This permits operation of valve in any postition. These pins and lugs also control the amount of disc movement. By maintaining a minimum of clearance, discs positively shear incrustations and deposits from seat ring upon closing.

Opposed Wedges . . . on top nut eliminate binding or twisting of stem. Nut is free to rotate and the only forces on the stem are straight up or straight down.

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Second Look At Leaky Walls

SIR—I have just received a reprint of your article entitled "What You Should Know About Thin Wall Buildings" (ENR Aug. 14, 1958, p. 38). It has come as quite a shock that a magazine of your reputation would print an article containing information on a building, namely Lever House, without first checking the facts with the responsible subcontractor involved.

Our organization was the glazing subcontractor on the Lever House building and for you and your readers' information, I am giving you the background of the glazing of this particular job.

The George A. Fuller Co. awarded us the glazing contract based upon our furnishing a heat absorbing glass manufactured by the Libby Owens Ford Glass Company. When our requirements were sent to Libby Owens for shipment they advised us that they were not in a position to furnish the glass for the building due to their commitments. We were then asked by the architects, Skidmore Owings & Merrill, and the general contractor, to contact the Pittsburgh Plate Glass Company to determine whether they could furnish the glass.

Pittsburgh Plate Glass readily agreed to furnish their ¼-in. Solex plate with the understanding that this glass was to be set in strict accordance with their standard glazing procedure which, for this type of glass, called for a seamless tape to be placed on the edges of the glass and then the glass was to be set into an approved glazing compound.

However, since this procedure was not required by Libby Owens Ford Glass Co., I personally contacted the research department at Pittsburgh Plate Glass and requested an explanation as to why they found that this method was necessary. Their reply was to the effect that the cut edges of the glass were to be protected so that pressure from the metal components of the window wall would not cause the glass to spall and break.

I discussed this further with their engineers and explained to them that their method was originally conceived for the sole purpose of installing the glass in a store front type of molding where a glazing compound was not used and the direct pressure of the outside molding to the face of the glass would cause a problem. I also further explained that on Lever House the glass was to be installed into frames that had removable channel glazing stops and that the glass, once installed on lead setting blocks, would not come in contact with any of the curtain wall components.

They refused to go along with my suggestions and stated that unless the glass was installed in accordance with their approved methods they would not guarantee the glass against thermal breakage. During this time the glass on the fourth floor was installed in accordance with the normal glazing procedure and our firm unconditionally guaranteed it against leakage. All the glass set thereafter was set in the tape specified by Pittsburgh in full accordance with the company's glazing instructions.

A number of months later we were notified by the George A. Fuller office that there were numerous leaks throughout the building and would we immediately check our glazing to find the cause. Our general superintendent made a thorough inspection at the job site and found that due to the great absorption of heat by the glass the adhesive on the tape had melted and dried out. Once this happened the water from the rains would flow on the face of the glass down to the top edge of the tape at the bottom and between the inside face of the tape and the glass, and then into the building. In other words, the glazing compound which was only in contact with the outside face of the tape could not serve its purpose.

The Fuller Company was notified of this and because of the fact that we had followed Pittsburgh's glazing procedure to the letter we could not and were not to be held responsible for the leakage. It was at that time that a caulking contractor was called in to use a liquid polymer compound.

It might interest you to know that soon after this problem arose at Lever House, the Pittsburgh Plate Glass Company came out with a new glazing procedure which eliminated the use of this tape in this kind of installation.

HERBERT J. KIRSHNER
President
Samuel Kirschner & Sons, Inc.
Woodside, N. Y.

Don't Forget Planners

SIR: Your article on flood-plain zoning (ENR Mar. 26, p. 23) refers to a December conference co-sponsored by the Council of State Governments and

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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Cutaway view of TRE Male Rod End.

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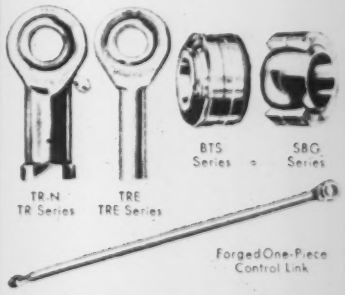

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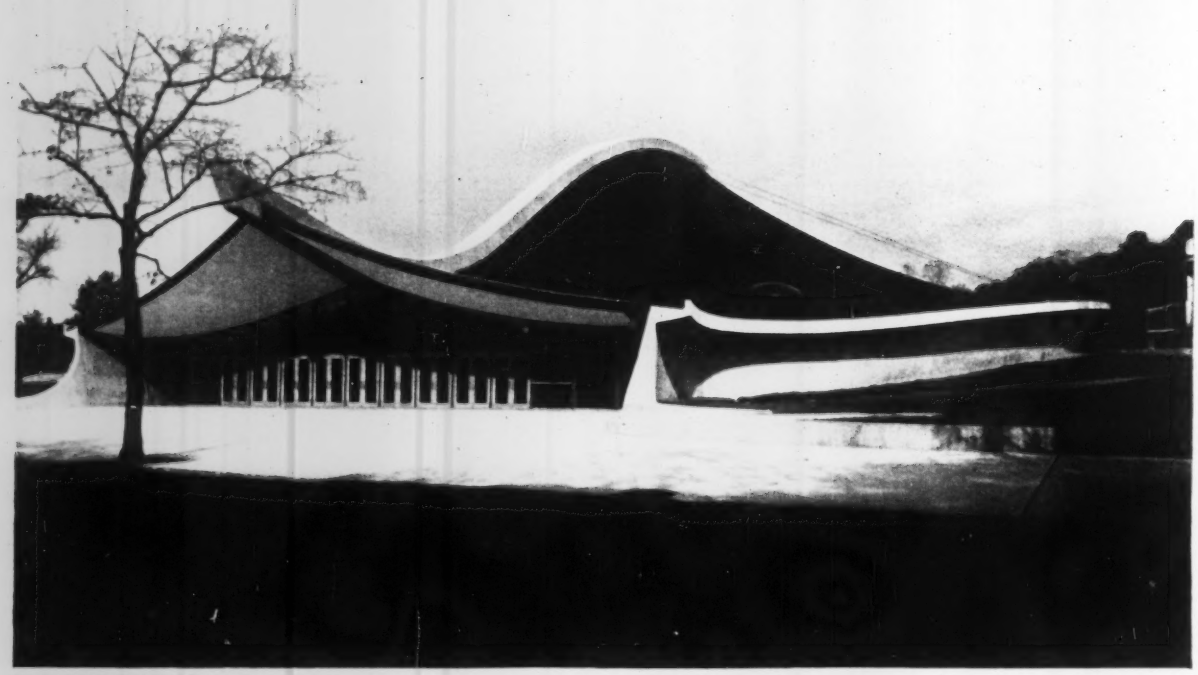

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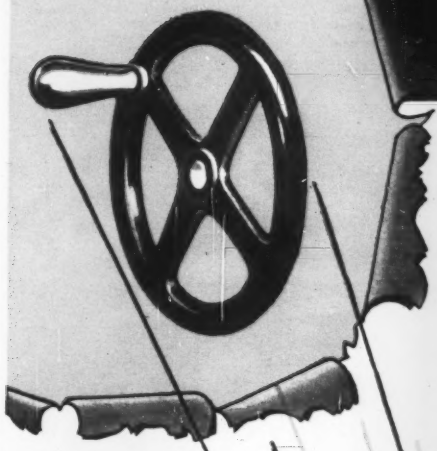

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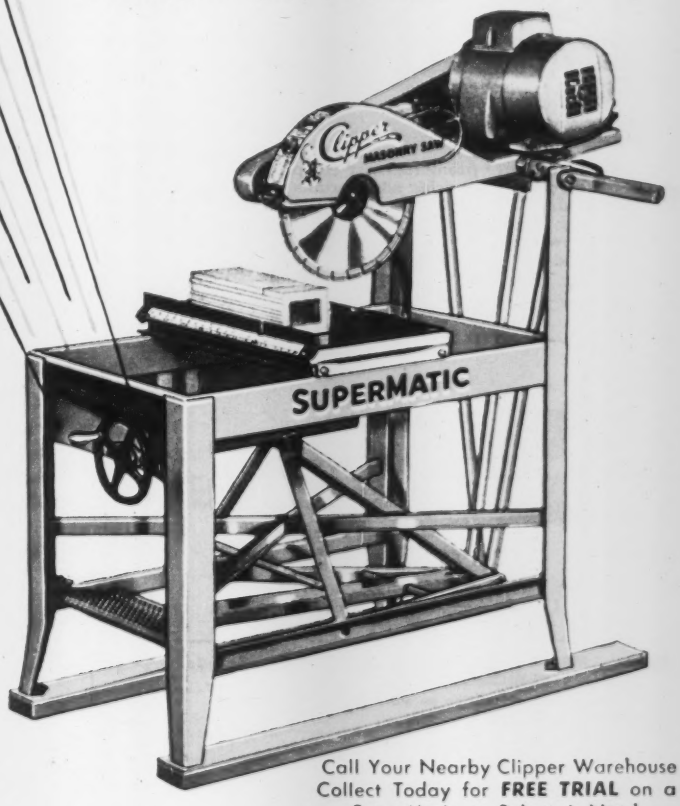

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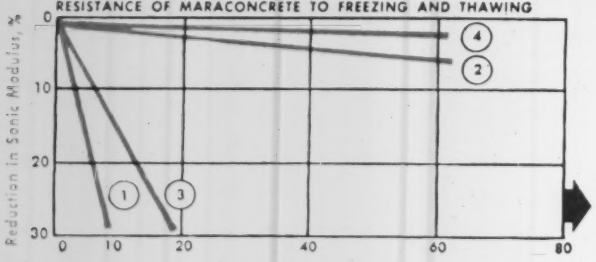
RESISTANCE OF MARACONCRETE TO FREEZING AND THAWING



Detail on chart Curves

CYCLES OF FREEZING AND THAWING

CEMENT TYPE	ADMIXTURE	CEMENT Sack/cu. yd.	WATER Gal./sack	AIR Percent	SLUMP Inches
I	None	7¼	4·9	1·3	3¼
I	Maracon	7¼	4·3	3·8	3½
III	None	7¼	5·1	1·1	3
III	Maracon	7¼	4·6	2·3	3

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MARACON® promotes more complete hydration of cement particles and permits a substantial reduction in the unit water content without loss of plasticity or consistency of the mix. Low water content means greater durability and resistance to weathering.

A. Minimize shrinkage in concrete before and after hardening, due to lower water content and more complete hydration of cement.
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C. Achieve greater density and higher durability factors.

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A. Maintain slump and workability at low W C ratios.*
B. Attain higher strengths without increasing cement content of a mix.**
C. Permit economical redesign of conventional concrete mixes.

*Decrease water by as much as 20% . . .
**Increase strengths by as much as 40% . . . depending on the mix design.
(The above figures are not represented as maximum. Greater percentages have been achieved in both respects.)

MARACON also reduces water requirements in concrete mixes containing pozzolanic materials.

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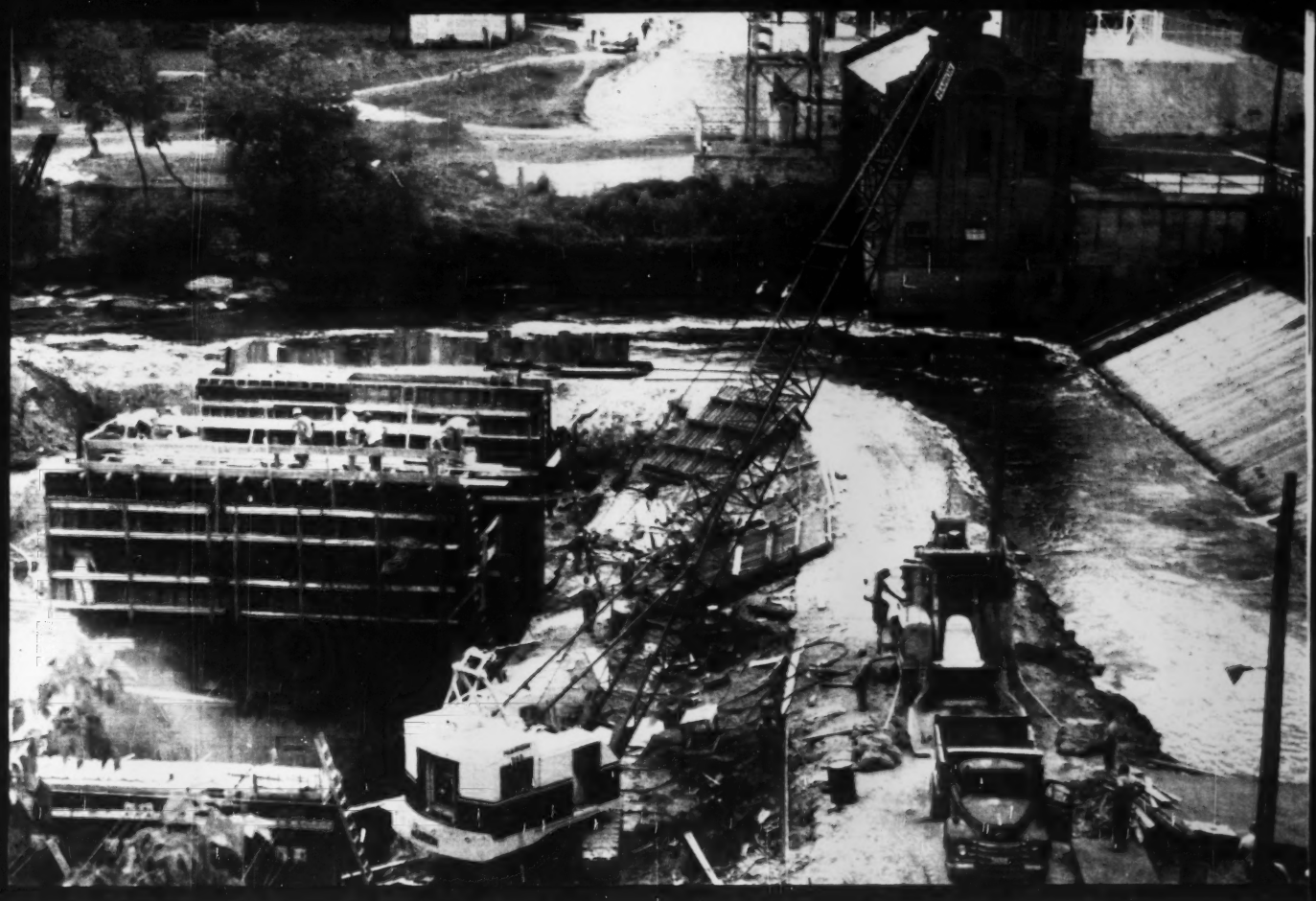

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On November 14, 1958, exactly 6 months after construction began, more than 3,400 tons of structural steel and 454 tons of wire rope were in place, and the bridge was ready for traffic.

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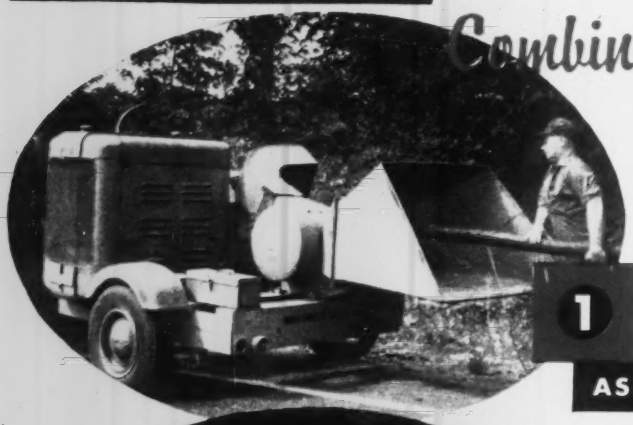

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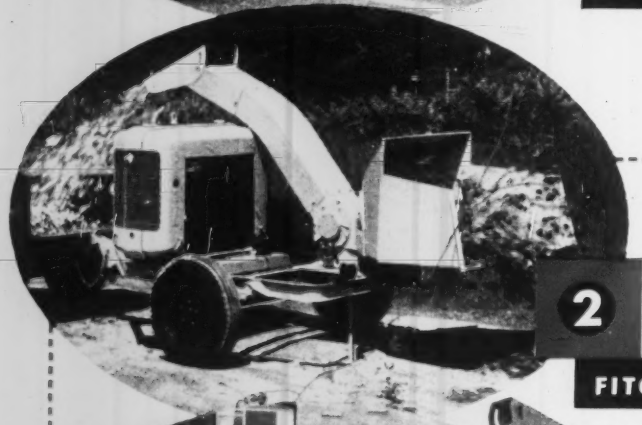

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. . . Reader Comment

the American Society of Civil Engineers. We would like to call your attention to the fact that there were three other co-sponsors, namely: the Department of Geography of the University of Chicago; the American Society of Planning Officials; and the American Institute of Planners.

We think of this as another of the growing number of instances where close collaboration of engineers, planners and others is producing new ideas and approaches to difficult problems.

W. C. DUTTON, JR.
Executive Director
American Institute of Planners
Washington, D. C.

For Your Calendar . . .

National Building Material Distributors Association, Annual Spring Convention, Cosmopolitan Hotel, Denver, Colo., May 10-13.

American Society of Planning Officials, National Planning Conference, Leamington Hotel, Minneapolis, Minn., May 10-14.

International Commission on Irrigation and Drainage Technical Conference, Reno, Nev., May 11-12.

Symposium on Industrial Uses of Radioisotopes, Georgia Institute of Technology, Atlanta, Ga., May 11-12.

46th Annual Convention of the National Rivers and Harbors Congress, Mayflower Hotel, Washington, D. C., May 13-14.

American Concrete Agricultural Pipe Association, Brown Palace Hotel, Denver, Colo., May 13-15.

Building Research Institute Conference on Building Illumination, Statler-Hilton Hotel, Cleveland, Ohio, May 20-21. Write: Harold Horowitz, Technical Secretary, Building Research Institute, 2101 Constitution Avenue, Washington 25, D. C.

American Society for Quality Control, 13th Annual Convention, Cleveland Public Auditorium, Cleveland, Ohio, May 25-27. Write: Wade R. Weaver, Registrar, Republic Steel Corp., Cleveland 1, Ohio.

Jet Airport Conference of ASCE Air Transport Division, Shamrock-Hilton Hotel, Houston, Tex., May 20-22.

Design Engineering Show, Convention Hall, Philadelphia, Pa., May 25-29. Write: Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Wire Reinforcement Institute Annual Spring Meeting, the Greenbrier, White Sulphur Springs, W. Va., May 25-26. Write: Frank R. Brown, Managing Director, WRI, 1049 National Press Building, Washington 4, D. C.

Concrete Reinforcing Steel Institute, Annual Meeting, the Greenbrier, White Sulphur Springs, W. Va., May 25-30. Write: H. C. Delzell, Managing Director, CRSI, 38 S. Dearborn St., Room 1625, Chicago 3, Ill.

Southern Research Institute Conference, Birmingham, Ala., June 11-12. Write: Southern Research Institute, 2000 9th Ave., South, Birmingham 5, Ala.

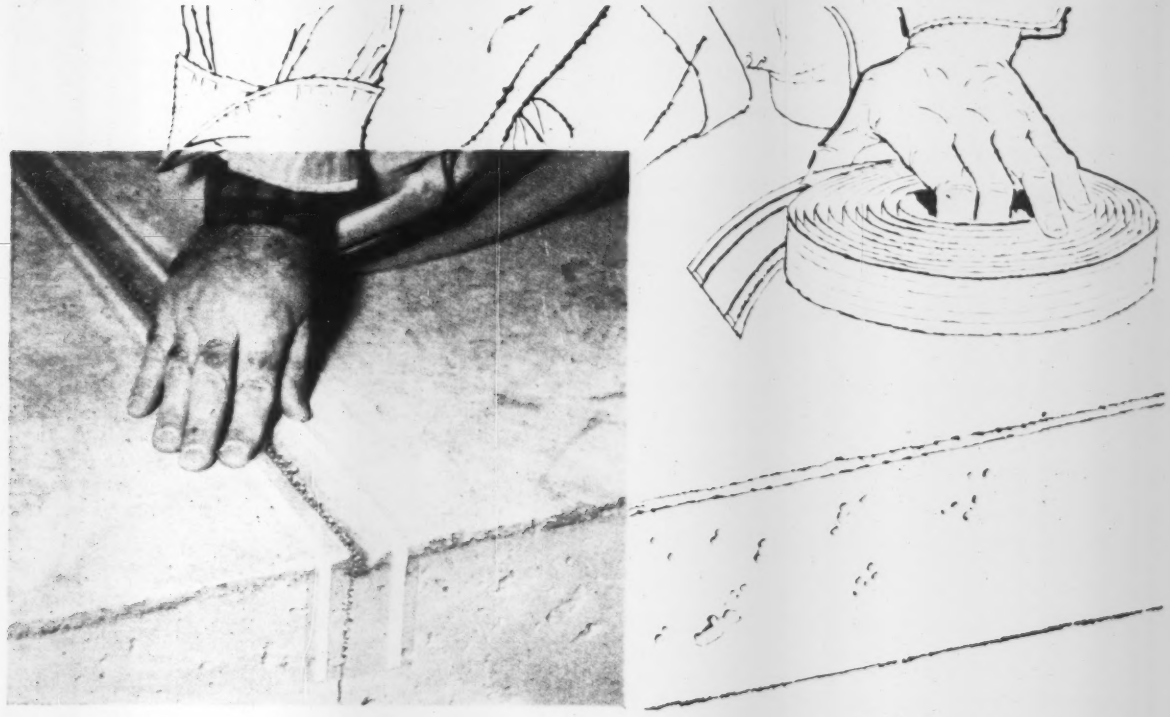
National Society of Professional Engineers, Annual Meeting, Commodore Hotel, New York City, June 17-20. Write: C. L. Ritchie, NSPE, 2029 K St. N. W., Washington, D. C.

American Society for Testing Materials, Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 21-26. Write: ASTM, 1916 Race St., Philadelphia 3, Pa.

American Institute of Architects, Annual Meeting, Roosevelt Hotel, New Orleans, La., June 22-26.

Air Pollution Control Association, Annual Meeting, Hotel Statler, Los Angeles, Calif., June 22-26.

Asphalt Institute Mid-Year Meeting, Hotel del Coronado, San Diego, Calif., June 24-25.



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Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

BIG CLAIMS, SMALL CHANCE?—Don't expect Seaway contractors in Canada to fare much better than their brethren in the U.S. on the $40 million worth of claims they have in against Canada's St. Lawrence Seaway Authority. The agency has already rejected over $7 million worth of claims. U.S. contractors settled for about 10 cents on the dollar.

"THERE OUGHTA BE A LAW"—After narrowly losing a move to deny funds to fix the status in the new Senate Office Building and to build a subway terminal there (see p. 24), Sen. Paul Douglas (D., Ill.) introduced a bill calling for appointment of a "qualified architect" as Architect of the Capitol—a post now filled by a civil engineer. The bill is not being taken seriously.

$5 MILLION DOWN THE DRAIN—Political changes in Iraq caused Morrison-Knudsen Co., Inc., to write off nearly $5 million of 1958 receivables from a wholly owned subsidiary, Morrison-Knudsen International Co. That much is due the subsidiary from the Iraq Development Board for the Basra-Amara highway, which it completed in 1958.

VOTERS SAY "YES" SECOND TIME AROUND—By a 3-1 majority, Eugene, Ore., voters last week approved a 56,000-kw hydroelectric project on the upper McKenzie River. It will cost between $19 million and $24 million. Three years ago a 30,000-kw scheme was turned down.

KNOW-HOW NEEDED—More than 44% of last year's 2,162 contractor failures resulted from incompetence, according to Dun & Bradstreet. "Inexperience," however, remains the major cause of demises in contracting with 48% attributed to it.

IS ACADEMY TOO EXPENSIVE?—The Air Force has spent more money on its new academy than Congress had authorized, and more than it had estimated, charges Controller Joseph Campbell, head of the General Accounting Office, Congress' fiscal watchdog. Congress authorized $139 million, but the Air Force has spent or obligated $197 million to date. Final cost is expected to be about $269 million.

ESPIONAGE AND OLD LACE?—Little old ladies, already masters at bank robbery, may be entering the spy business. FBI men and Army intelligence agents were looking for a pair of them who walked off a bus in southern California this week with a briefcase containing plans for a South Pacific guided missile base. The lieutenant colonel who lost the plans says it would be unfortunate if they were to fall into the wrong hands.

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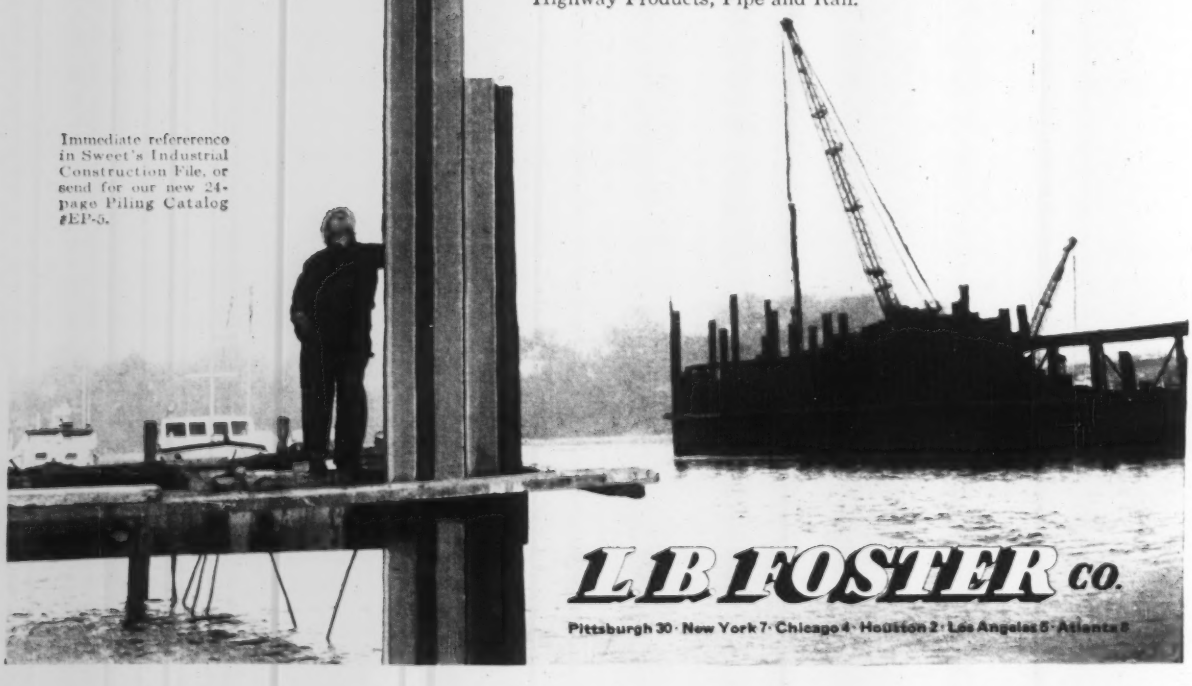

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WASHINGTON OBSERVER

- **TVA bonds face House test**
- **Brooks Hays to join TVA Board**
- **Congress cools on dispersal idea**
- **Rockefeller backs sewerage aid**

- **Bond financing authority of the Tennessee Valley Authority is approaching its severest test to date**—on the floor of the House of Representatives. The Senate has already voted approval of the proposal twice—last year and this. But the House, which is more skeptical of giving TVA such power, has yet to be tested. The bill will come up in the next week or so.

  The legislation would permit TVA to sell bonds to get revenue for expansion within present boundaries. The Administration favors similar legislation, but has reservations about the amount of autonomy the Senate legislation would give TVA's three-man board.

- **Congress favors the appointment of ex-Rep. Brooks Hays (D., Ark.) to the TVA Board.** He will replace Frank J. Welch for a term expiring late next year. Mr. Hays, who was defeated for re-election last November, has the support of both pro-TVA and anti-TVA Senators. This week, Sen. Estes Kefauver (D., Tenn.) gave his endorsement.

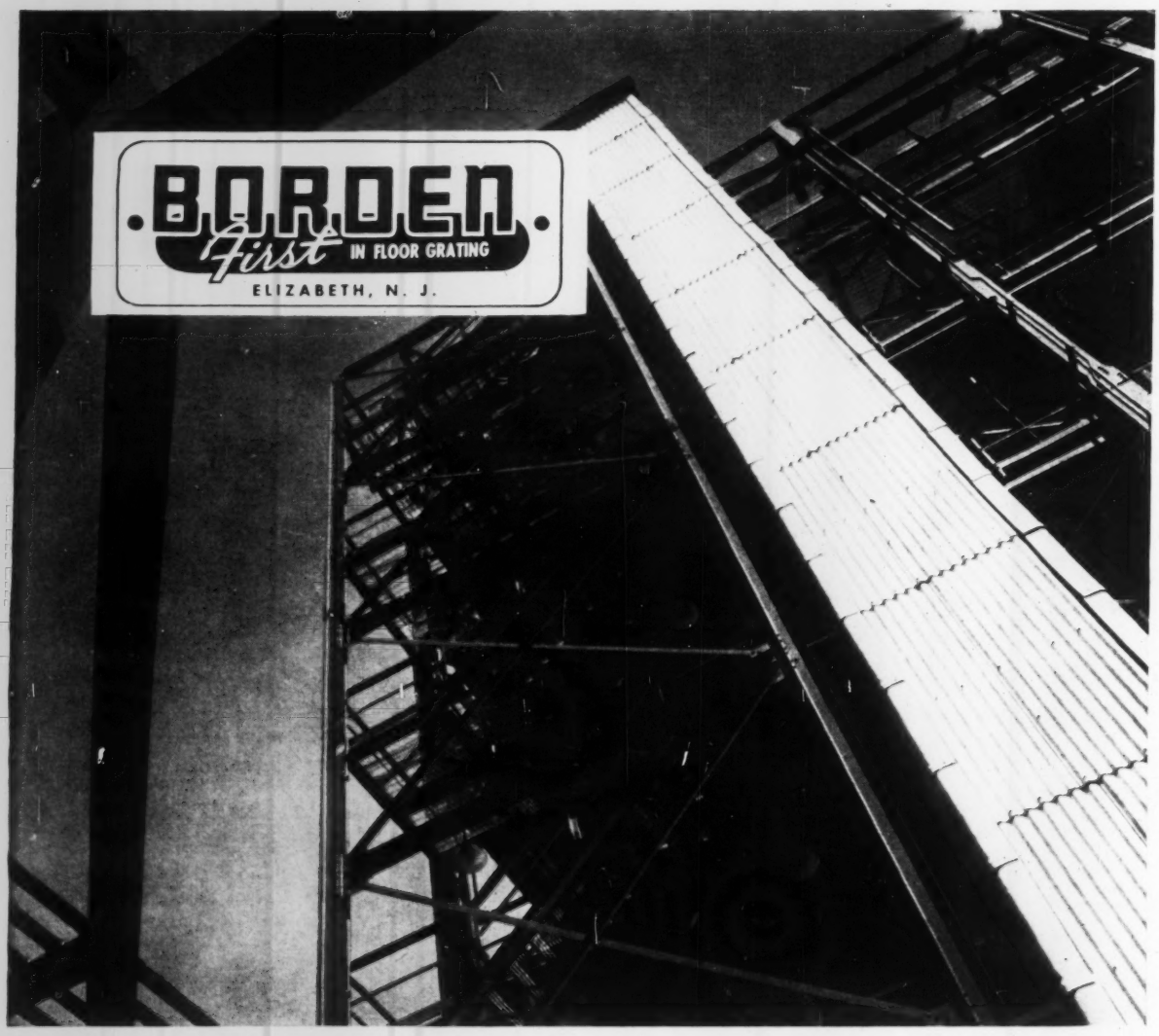
  Mr. Hays joins Brig. Gen. Herbert Vogel and A. R. Jones on the Board. Mr. Hays has supported the authority and other public power programs in the past, although he voted for private development of Niagara, and for the Dixon-Yates proposal for a private steam plant at West Memphis, Ark., to feed electricity into the TVA system.

  He would probably stay on at TVA whether a Republican or Democrat is elected President in 1960.

- **Dispersal of government buildings as a defense against atomic attack no longer gets any support.** Sentiment in Washington has switched completely since 1955, when Congress and the Administration agreed to move the Atomic Energy Commission from its location near the White House to Germantown, Md., 27 miles out into the country.

  Now key Congressmen of the House Public Works Committee are using AEC's location as the horrible example that shouldn't be repeated. Robert E. Jones (D., Ala.), chairman of the Public Buildings Subcommittee hints that if his group had the jurisdiction, it would have approved a more central location for such agencies as the Central Intelligence Agency, which is headquartered up the Potomac at Langley, Va., and the National Aeronautics and Space Administration, which is at Beltsville, Md.

- **Nelson Rockefeller keeps adding to the public works record that may be crucial to his Presidential aspirations.** He surprised Rep. John A. Blatnik (D., Minn.) by voluntarily coming out flatly for the bill to boost to $100 million a year the federal aid to construction of sewage plants. Federal aid is now at $50 million.



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Competition From Out of the Blue

- **Aircraft and electronic companies are showing increased interest in moving into construction—they're getting contracts, too.**
- **Contractors concede the potential power of such competition, but some doubt that the newcomers are a serious threat.**

Robert J. Stinson
Associate Editor

Construction contractors and engineers are facing major competition from sources once considered far removed from building: aircraft manufacturers, electronic and communication system companies, and manufacturers of missile fuels.

Selection last week of Lockheed Aircraft Corp., of Burbank, Calif., as prime contractor for a $5-million monorail in Seattle spotlights the trend (see p. 22). And adding emphasis is Lockheed's recent acquisition of controlling interest in Puget Sound Bridge and Dredging Co., a Seattle general construction and shipbuilding company.

The Seattle monorail is only the first of many projects Lockheed will go after. The company has its eyes on the big market in missile launching facilities, although a company spokesman indicates all types of construction jobs will be sought.

And look what else is happening:

- A subsidiary of Collins Radio Co., Cedar Rapids, Iowa, is setting up an architect-engineer group to design ground facilities for military and commercial communications systems. The same subsidiary will consider acquisition or establishment of a construction company, if necessary.
- Aerojet-General Corp., of Azusa, Calif., manufacturer of missile fuels and engines, is among the architect-engineer groups designing missile-launching facilities at Vandenberg Air Force Base, Lompoc, Calif.
- Douglas Aircraft Co., of Long Beach, Calif., is prime contractor for the fabrication and erection of base shelters for the Thor intermediate-range ballistic missile.
- North American Aviation Co., of Los Angeles designs and builds nuclear power reactors, including types used by power-producing companies. This company now proposes to purchase Foster Wheeler Corp., of New York City. Foster Wheeler manufactures electric utility power equipment and it is well established in design and construction of petroleum, chemical and industrial plants.
- Northrop Aircraft, Inc., Beverly Hills, Calif., was a competitor of Lockheed for the Seattle monorail project.

Another possible new competitor is Electric Boat Division of General Dynamics Corp., of New York City. A spokesman for the submarine-building division recently told a technical group that the complicated and extensive piping system necessary in the underground silos for the Titan missile is similar to that of submarines.

To find out how rough the competition eventually may become, and the reasons for widening interests on the part of some companies, ENR surveyed officials of major aircraft manufacturers, electronics and communications companies. Architect-engineer firms and construction firms were also queried.

Reaction to ENR'S survey ranged from apathetic to apoplectic. However, there was agreement that A-power and missiles, particularly the latter, are adding something new to construction competition.

Some construction men say they occasionally find it difficult to deal with the aircraft companies because the latter lacks construction know-how.

From the aircraft and electronic industries come hints that their movement into construction is as much for procedural control over a job as for business profit.

Alpha Corp., of Dallas, a month-old subsidiary of Collins Radio, was organized to design, construct and install complex communications systems.

This company will not be going after missile launching facilities work, but it will build communications facilities for missile ranges and other types of communications systems.

The subsidiary is building up an architect-engineer group to grease the slide into construction. Eventually, construction could be more important to the company than electronics, according to Alpha's president, Max W. Burrell. He believes technological advances will require a different type of construction know-how, with electronics becoming the springboard into construction.

The recent moves by Lockheed and North American are being watched with interest, but little apparent concern, by their aircraft competitors. They say they are not considering similar moves.

The acquisition of Foster Wheeler by North American must be approved by stockholders of both those companies. If approved, North American will be in a stronger position for A-power business. And Foster Wheeler's know-how in petroleum-refinery engineering and construction would be a valuable asset in the field of missile facility construction. Both types of construction, in a physical sense, consist of steel framing, tanks and piping.

Although other aircraft companies deny interest in attempting missile facility construction, they concede the potential value of owning a construction company. They believe such ownership could put an airframe manufacturer in a better position to secure a contract as a weapons system manager for a missile system. They say it would allow a missile manufacturer to claim a greater awareness of the problems involved in overall missile development.

Some contractors also are aware of the potential competitive advantage of an aircraft-construction combination. They say an aircraft company going after an integrated missile and missile facility construction contract could underbid construction companies on the facilities portion. They believe that any loss suffered on the facility construction could be then made up in higher charges for development, design and

fabrication of the missiles themselves.

Some contractors surveyed, however, are not convinced a combined operation would result in more efficient missile facilities construction. "They know how the bird should fly, but they don't know how to build the ground facility that will get it going," one contractor reports. "Lots of scientific theory, but no know-how when it comes to construction problems."

Construction engineers generally are reluctant to discuss the trend apparently taking shape. "The aircraft concerns are good clients," was one response. Another engineer charged that any concerted move by airframe manufacturers to enter facility construction would be "an invasion of a field of business where they don't belong."

An executive of one major construction company says he is not seriously worried about the new competition. "It won't help us," he said, "but neither will it break us."

He speculates on the possibility of aircraft companies finding themselves snagged in jurisdictional disputes between the industrial unions in the manufacturing end of the combine and the trade unions in the construction end.

Jersey Towns Form Agency To Reclaim Meadowlands

A regional redevelopment agency that will try to reclaim the meadowlands of northeastern New Jersey came into existence last week. Three of the 25 communities touching on the meadows adopted ordinances creating the group.

At least 12 other municipalities in the area are considering joining.

The agency idea was proposed earlier this year by the State Conservation Department as the only way to properly develop the meadows. Many communities have tried piecemeal efforts at reclamation in the past, but their efforts have been only partially successful. The meadows cover about 30,000 acres within a few miles of New York City.

The regional organization would enable the various communities to develop a master plan for reclamation. First act by conservation officials after formation of the agency was to ask Congress for a $25,000 survey of the meadowlands by Army Engineers.

Several communities have been cool to the agency idea because they have well-advanced plans of their own for reclaiming the meadowlands within their jurisdiction. Five North Jersey towns have already formed the Meadowlands Regional Planning Board. This group has received a report from Dutch engineers (ENR March 26, p. 29) covering a 15,000-acre portion of the meadows.

Seattle Plans Monorail System

The Seattle Transit Commission is contracting for a $5-million monorail that will carry visitors to the city's coming "Century 21 Exposition." It will be the first mass-transportation monorail in the U.S.

The system will transport passengers from the main business district to the 74-acre exposition site, one mile north. Lockheed Aircraft Corp. is prime contractor (see p. 21).

The monorail is expected to be in operation by November, 1960. The exposition is scheduled to open May 10, 1961. Cost of the exposition is set at up to $50 million, including a $4.5-million sports arena.

After the exposition closes in the fall of 1962, the monorail line may become the first unit of an extended monorail system that would tie in to new freeways.

The monorail will be of the supported type. Three four-car, 96-passenger "air trains" will be mounted atop a rail of steel. Five steel wheels at each end of each car will support the carrier units on the rail.

The monorail will be a minimum of 18 ft above street level. It will stand on steel supports spaced 85 ft apart. The rail will come in 170-ft sections.

Cars will be largely of aluminum and powered by electric motors. Top speed will be 60 mph for a 94-sec trip.

On-site construction of the line will be handled by Puget Sound Bridge & Dredging Co., which has become a new affiliate of Lockheed.

Six monorail designs and one belt conveyor were considered by the transit system staff. Other companies bidding were Monorail, Inc., of Louisiana and its parent company, Alweg International Inc., recently granted a franchise for a monorail system in New Orleans; Norair Division of Northrop Corp., California aircraft firm; General Monorail, Inc., San Francisco; St. Louis Car Co.; Goodyear Tire & Rubber Co., Akron, Ohio.

(For more on monorails see p. 34.)

How Michigan Saved $3 Million

The Michigan State Highway Department has made changes in operation that have saved over $3 million since late 1957, says Commissioner John C. Mackie.

The commissioner breaks down the savings this way:

- $1 million saved on highway survey work by gradually eliminating outside consultants and using department personnel instead.
- More than $1 million saved by increased use of department forces instead of consultants for highway design.
- $1 million saved by reducing overtime during the construction season through improved controls, and eliminating overtime during the winter except in emergencies.
- $15,000 saved by eliminating unnecessary language in advertising highway construction proposals.
- $50,000 saved by early purchasing of bulk quantities of salt and calcium chloride for winter maintenance and by moving quantities by boat rather than truck.
- $23,000 saved by recovering office space formerly used for storing inactive records and by releasing some 100 file cabinets through microfilming.
- Almost $100,000 per year saved by developing better coordination between design squads and electronic computer operations. This stepped up utilization to six times the former level.
- $2,000 in postage saved by sending plans and proposals "Parcel Post special handling" instead of sending them "Special Delivery."
- $2,400 in telegraph charges saved by using a teleprinter and by sending messages by the least expensive classification.
- $11,300 saved by using a photographic process to prepare construction proposals. This eliminated considerable typing.

Oops! Low Bidder Way Too Low

The low bidder for construction of Atlas missile launching facilities in Washington State was allowed to withdraw the bid last week when the company claimed an error of $2.5 million.

Wells Benz, Inc., San Diego, had offered to build the ICBM facilities of Larchild Air Force Base for $5,341,872. But, the company said, it failed to include some important tanks.

Corps of Engineers, Seattle, then awarded a $6,859,000 contract for the project to a combine headed by Patti MacDonald Construction Co., St. Louis.

The winning combine is composed of S. Patti Construction Co. and MacDonald Construction Co., St. Louis, plus C. H. Leavell & Co., El Paso, and Scott Co., Kansas City, Mo.

All 25 bidders for the job were below the $8,555,000 estimate.

Biggest Hydro Job

10,000-sq-mi reservoir would supply 3 million kw

A reservoir half the size of Lake Erie and a hydroelectric development bigger than any now existing would result from a proposed billion-dollar Yukon River project in Alaska.

The dam would be built at Rampart Canyon, about 100 miles northwest of Fairbanks. It would back up a lake 200 miles long and 50 miles wide, which would take 15 years to fill.

Sen. Ernest Gruening (D., Alaska), who campaigned for the Senate on the issue of public power development, has pushed a resolution through the Senate Public Works Committee authorizing $135,000 for the first part of a three-year, $1-million study of the project. The Corps of Engineers has promised to back up the request in the House Appropriations Committee.

After completion of the study, it would take two years to design the dam and eight more to build it. The structure would be 400 ft high and 2,500 ft long.

Cost of the project, Senator Gruening says, is estimated at $1-billion to $1.5 billion on the basis of preliminary studies. It would yield power at the site for two to four mills per kilowatt-hour, "low enough to encourage the location of major power-using industries" and open up "a new frontier of industrial development."

The flooded land would be no loss. It is an area of permanently frozen subsoil inhabited only by a few Indian log-cabin villages. There are no roads or railroads. The natives live by hunting and fishing.

The lake will be so big, says the Senator, that it will "substantially modify" the climate of interior Alaska—an extremely desirable fringe benefit. Fort Yukon, which would be under water, has registered temperatures from 100F above to 70F below zero.

Alaska's only installed federal hydro project is the 30,000-kw Eklutna plant near Anchorage. The Bureau of Reclamation completed it in 1954 at a cost of $30 million. Reclamation is preparing engineering reports on two more: Devil Canyon Dam, upper Susitna River, 480,000 kw; and Snettisham Project, tapping two natural lakes near Juneau, 40,000 to 65,000 kw. The Corps of Engineers is studying one project, Bradley Lake Dam, on Kenai Peninsula, 46,000 kw.

Undeveloped hydro potential in the new state totals about 18 million kw, one-sixth of all undeveloped hydropower in the U.S., the Federal Power Commission estimates.

All That Glitter Isn't Just Gold

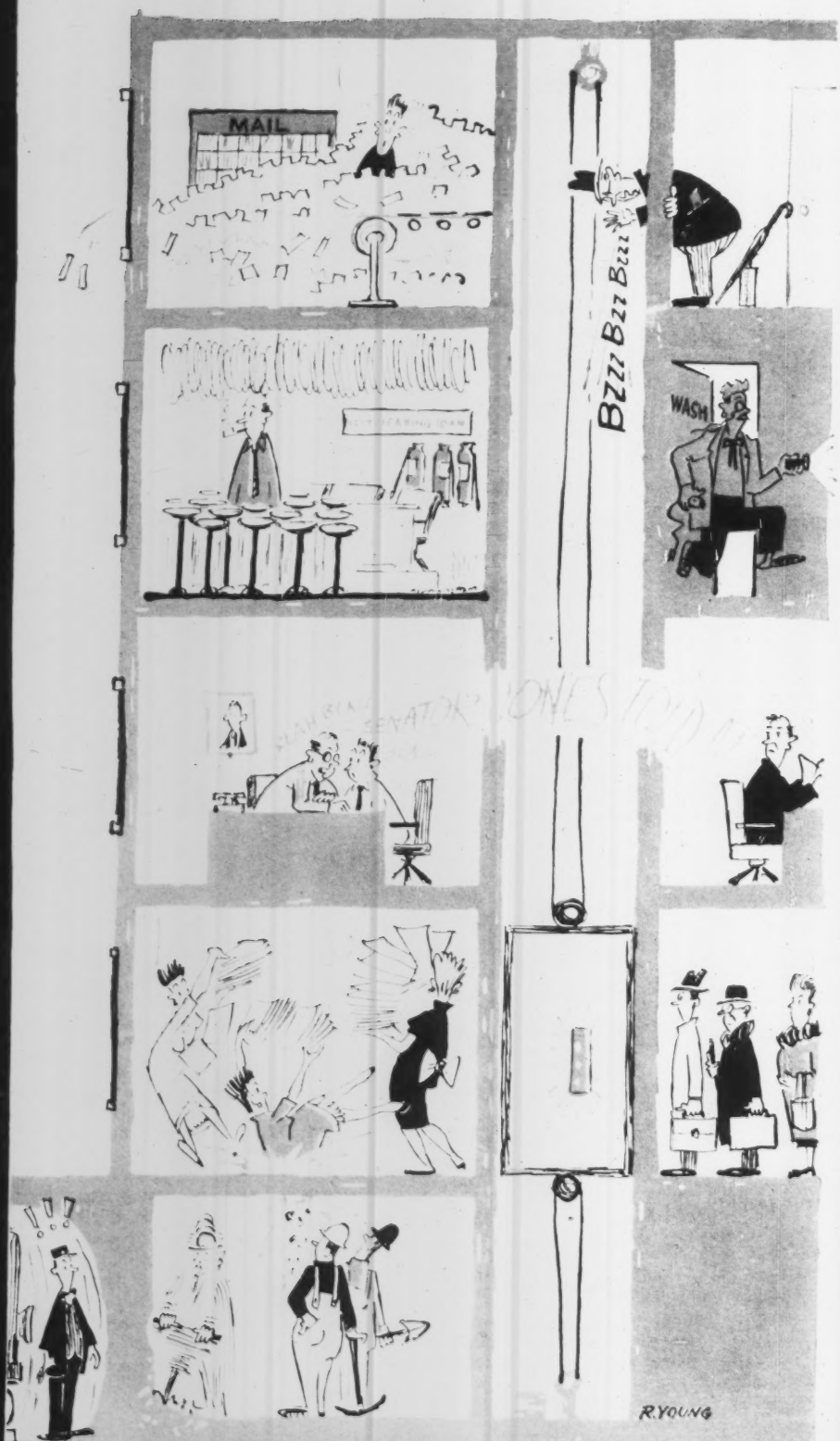
Workmen have completed a gold leaf coat on Georgia's state capitol in Atlanta, but the glitter on top is hardly the whole story.

The original 8,400-sq ft dome was covered with ceramic tiles; the surface varied as much as 2 in. from tile to tile. Crews evened this surface with a layer of emulsified asphalt mixed with cement. Monel metal shingles went on next. After this, workmen washed the entire dome with a liquid metal cleaner and put on coats of zinc chromate primer, exterior white and exterior yellow-gold paint. Then the gold-leaf work started.

First step was brushing on oil sizing, just enough each time for one day's work. The 42 oz of gold leaf—23 parts gold to one part copper, for brilliance and durability—was finally rolled on in small squares. Gold dust for the foil was contributed by Lumpkin County.

A. T. Bradbury of Atlanta was supervising architect. Skyline Engineers of Fitchburg, Mass., applied the gold leaf.

Senators Feathered Their Own



When members of the U. S. Senate returned to Washington after the Easter recess, the center of attraction was their magnificent new office building. Designed in 1948 under supervision of a Senate commission it had finally neared completion in their absence.

Members of the world's most powerful debating society examined the $26-million prize critically. The ceilings looked a bit low (13 ft, compared with 18 ft, 10 in. in the old building). Some things looked disturbingly new to members of a body steeped in tradition (ENR Sept. 12, 1957, p. 26).

But by and large the Senators liked what they saw—a gleaming seven-story structure of white Vermont marble, with impressively big hearing rooms equipped with the latest in public address systems, handsome bronze light fixtures and heavy walnut doors.

Some Senators—such as Harry Byrd (D., Va.), Allen Ellender (D., La.) and Carl Hayden (D., Ariz.)—preferred to stay put. But most quickly compared seniority to see who would be among the 42 lucky members to take occupancy. The big move started.

Then began a tide of disillusionment leading even to Senatorial charges of a "colossal blunder." That phrase is a little strong for the collection of things bringing down Senatorial wrath.

One of the building's most vociferous critics, Sen. Paul Douglas (D., Ill.), was moved to poetic indignation on the Senate floor:

"Oh, architect, spare our Capitol, touch not another stone, in youth it shielded our republic, O! please, let it alone!"

Even J. George Stewart, Architect of the Capitol—an engineer and an ex-Congressman, but not an architect—concedes that everything is not as it should be in the new Senate Office Building.

He confirms this bill of particulars:

• When construction started in 1955, no one knew for sure where a special subway from the Capitol would enter the office building. Result: When the subway tunnel was excavated, a big hole had to be cut through an outside retaining wall. A knockout panel was provided in the building wall.

• Horrified Senators have discovered that their most private office conversations can be heard plainly in the public hallways. There are twin culprits: the louvered doors and the insufficient acoustical treatment of the walls.

• Driveways to the two-level underground garage apparently were designed for automobiles of a bygone day. The long, low-slung creations of 1959 drag

Nest—But Now It Tickles

center at the top of the incline and drag both ends at the bottom. Efforts to fix this are complicated by the fact that automatic electric snow-melting equipment is imbedded in the concrete drive. Within the garage itself, the position of steel columns had to be changed to accommodate the greater width of the newer autos.

• In the hearing rooms, the Senators sit on a raised dais a considerable distance from the witness table. One elder Senator complained of his isolation: "I like to see the whites of their eyes when they're testifying." Another consideration is that the Senators no longer show up in the background when photographs are taken of witnesses. One committee worried that the Senators, when stepping from the raised dais into an adjoining room, would neglect to make the step down—with disastrous consequences to their dignity and their bone structure. As a result, a raised platform complete with a shiny hand rail was extended into the adjoining room.

• The Otis Elevator Co. installed the latest in automatic elevators. But someone forgot that impatient Senators traditionally buzz three times when they want immediate elevator service. The new machines aren't set up to record anything beyond the first buzz. As a stopgap, two elevators have been set aside exclusively for Senators. Now the experts are trying to "retrain" the automatic elevators to recognize and answer a Senator's urgent call.

• Each Senator has a private wash room complete with socket for an electric shaver—but just one 15-watt fluorescent bulb. As one lawmaker's aide puts it, "The Senator can barely make out the wash basin in there, much less his whiskers." Light fixtures, as well as the bulbs, must be changed.

• Two girls already have been hospitalized from falls on the expensive but slick rubber tile flooring used through most of the building. And the tile does nothing to absorb the clatter of office machines. Result: Wall-to-wall carpeting is being proposed for all offices. Cost: $150,000.

• The cork flooring used in the committee hearing rooms is highly susceptible to cigaret burns. The only solution so far is to provide more and more ash trays for the lobbyists and tourists.

• The new desks for the Senators' employees proved to be so low-slung that secretaries couldn't get their legs under them. The solution was simple, if crude—install wooden blocks under desk legs.

• The speaker system in the plush new hearing rooms has proved the biggest disappointment of all. The Senators were provided with individual control buttons to turn their mikes on and off. In practice, frustrated lawmakers have found themselves talking into dead mikes one minute and having private asides to their neighbors broadcast to the room the next. And audience noises were picked up by the system and amplified. The amplifying system is hooked to the bell system by which Senators are summoned to the Senate floor for important votes. The bells are designed to have a soft, soothing tone, but they hoot like a foghorn when amplified by the speaker system. No solution short of scrapping the whole works has yet been found.

Critics like Senators Douglas and Ellender are especially provoked by the decision to abandon the existing subway tunnel between the old office building in the Capitol, and replace it with two new tunnels and a more fancy set of railroad cars linking both buildings with the Capitol. This plan came up after the original design was done.

Furthermore, a $4-million subway terminal will be built if appropriations are granted, as seems likely.

The Capitol Architect's office defends the subway system as essential to the modernization of the Capitol complex. But as for the other complaints, Philip L. Root, executive assistant to the Architect of the Capitol, agrees that "we've run into more trouble than you'd normally expect."

Who is to blame? And who will pay for the half-million-dollars or so in necessary modifications?

It is here that the collective Senatorial face turns red. For a look at the record indicates that the Senate cannot lay the blame far from its own creaking machinery and split personality.

Design and construction were supervised and approved, every step of the way, by the Senate Office Building Commission, which is a group of Senators chosen by the U.S. Senate itself.

Hence Uncle Sam will foot the bill for the corrections.

David Lynn, a Democratic appointee, was Architect of the Capitol shortly after World War II when the Commission started on the project.

Five architectural firms were asked to submit brochures on past work.

Eggers and Higgins of New York City, who count the Jefferson Memorial and the National Art Gallery in Washington on their list of credits, got the job for a fee that ultimately totaled $3.1 million. Contract for the subway work is held by Jesse M. Shelton and Allan Stanford, of Atlanta, Ga.

The design was drawn up in 1948, approved by the Senatorial commission and submitted to Congress for approval in 1950. Senator Ellender, a powerful member of the Appropriations Committee, launched a full-scale attack on the project on economy grounds.

Nevertheless, it probably would have been approved at that time. But the Korean war came along to put a squeeze on nondefense dollars.

Senator Ellender fought a running battle with the Architect's office and other champions of the project in the years that followed. Before the project was finally cleared by Congress in 1954, the Louisianan had succeeded in having one whole wing trimmed from the proposed structure, as well as a swimming pool, a roof garden and physiotherapy rooms for the weary lawmakers.

Still, in most details, the building standing today remains the same as conceived in 1948.

The construction contract went to George Hyman Construction Co. of Washington. Most of the actual work was subcontracted out.

Only two Senators remain of the original Building Commission. In all, 14 Senators have had a direct hand in supervising the project.

A new Architect of the Capitol, Mr. Stewart was appointed in 1954.

As a spokesman for the Architect's office explains, "Not a single man, either here or at Eggers and Higgins, who was directly involved in the project in 1949 is still around."

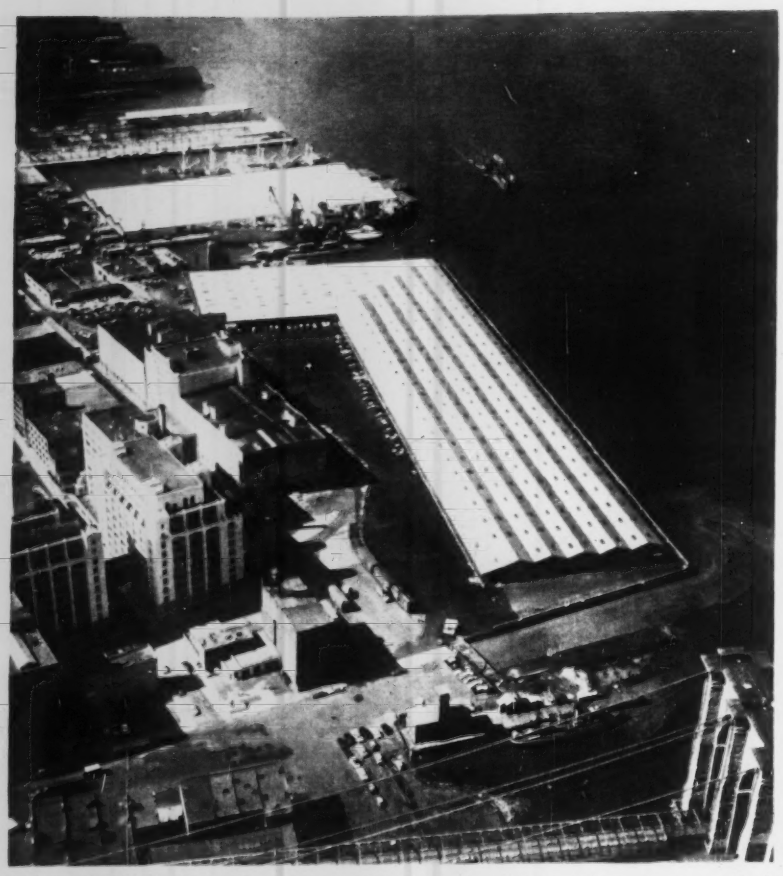
Take the lag of construction behind design and the turnover in personnel, and throw in the special nature of Senatorial needs—priority elevator service, for example—and the roots of the problem emerge.

Thus it is that a mail conveyor system that was the last word in 1949 must be modified after construction at an extra cost of $60,000. And a garage and driveway that was adequate 10 years ago proved a misfit for Detroit's newer creations.

Some Senators, like Sen. Mike Monroney (D., Okla.), feel too much is being made of what is essentially a shakedown cruise for the new building.

On the House of Representatives' side of the Capitol, the sidewalk superintendents are watching another structure go up: this one the "new new" House Office Building (as distinguished from the "old" and the "new" House Office Buildings).

It is slated for completion in two and one-half years at an estimated cost of $64 million. And the word is out that it will boast the latest in gadgetry and design that taxpayers' money can buy.



LATEST ADDITION to Brooklyn waterfront is L-shaped pier. Above it are previously completed pier and one to be completed. That's a Brooklyn Bridge tower in foreground.

Three Down. Seven to Go

An $8.3-million, L-shaped pier on the Brooklyn side of New York Harbor went into operation last week.

The modern cargo-handling facility, Pier 1, is just south of the Brooklyn Bridge. It is the third completed pier of an $85-million, 10-pier complex that the Port of New York Authority is building along a two-mile stretch of Brooklyn waterfront.

The long arm of the L measures 1,090 ft, the short arm, 500 ft. There is berthing space for three ships.

A 200-ft wide aluminum shed covers 256,000 sq ft of interior space that is "daylighted" by colored translucent plastic panels inserted at intervals in the roof.

The shed is set back from the wharf edges to provide 50-ft aprons for loading and unloading ships. A 20-ft wide platform on the inshore side of the shed can handle 70 trucks at a time.

Almost 180,000 sq ft of paved upland area take the trucks off the narrow surrounding streets.

A stevedore's garage for storage and repair of cargo-handling equipment is included in the upland area. And for the first time, a shelter for stevedores is being tried. It measures 47 x 33 ft.

The long segment of the pier is built on fill. The short length incorporates the piles of an old pier and an additional 1,200 creosoted timber piles, newly driven. The piles are capped with concrete cylinders above the waterline.

An asphaltic concrete floor will support 500 lb per sq ft.

The Brooklyn Port Authority pier program started in 1956. It will replace 25 obsolete piers south of the Brooklyn Bridge with 10 modern structures by 1965. Two more piers will be completed this summer for a total of five finished piers by fall.

Substructure for Pier 1 was handled by Horn Construction Co., Inc., Merrick, N. Y. Planet Construction Co., New York City, did the superstructure and Steuban Asphalt Paving Co., New York City, had the paving and utilities contracts.

The pier has been leased to American Stevedores, Inc., for five years at an annual rental of $645,000.

CEC Board Meets

Votes on House bill, corporate practice, publicity

The noises of growing pains were clearly audible at Consulting Engineers Council's third annual board of directors meeting in New York City last week.

President Charles C. Pate patiently guided the 24 delegates through three days of difficult parliamentary procedure, then relinquished the helm to Ralph M. Westcott of California, who wound up the proceedings on Saturday as new CEC president.

There was talk about "crawling before we walk." And discussions at the open meetings were very largely "information" reports from the federation's member associations and its standing committees. But there were signs, too, that CEC is now a going concern.

- It fired off telegrams to Congressmen opposing the limitation on VA to 5% in an appropriations bill before the House.
- It voted a $5 "per principal" public relations program for the next year. (With 1,235 "principals," [members of firms in associations belonging to CEC] this means about $6,000.)
- It heard its group plan of professional liability (errors and omissions) insurance described as being "off the ground" with about $200,000 now being paid in annual premiums.
- And it came up with a resolution on "corporate practice."

This policy read in part: "corporation . . . should engage in the practice of professional engineering only provided . . . ownership and continuing control . . . by professional engineers" — no mention of degree of ownership or control.

Joint Venture Named for Bay Area Transit Plans

A three-firm team of engineering consultants has been picked to prepare detailed plans for a regional rapid transit system for the San Francisco Bay area. Cost is estimated at $716.5 million.

The firms are Parsons, Brinckerhoff, Hall & Macdonald, New York City; Bechtel Corp., San Francisco; and Tudor Engineering Co., San Francisco.

A $600,000 contract is being negotiated with the San Francisco Bay Area Rapid Transit District.

The joint venture must complete plans by May, 1960, for a rail system serving the counties of Alameda, Contra Costa, Marin, San Francisco and San Mateo. Voters will be asked to support a general obligation bond issue in November, 1960.

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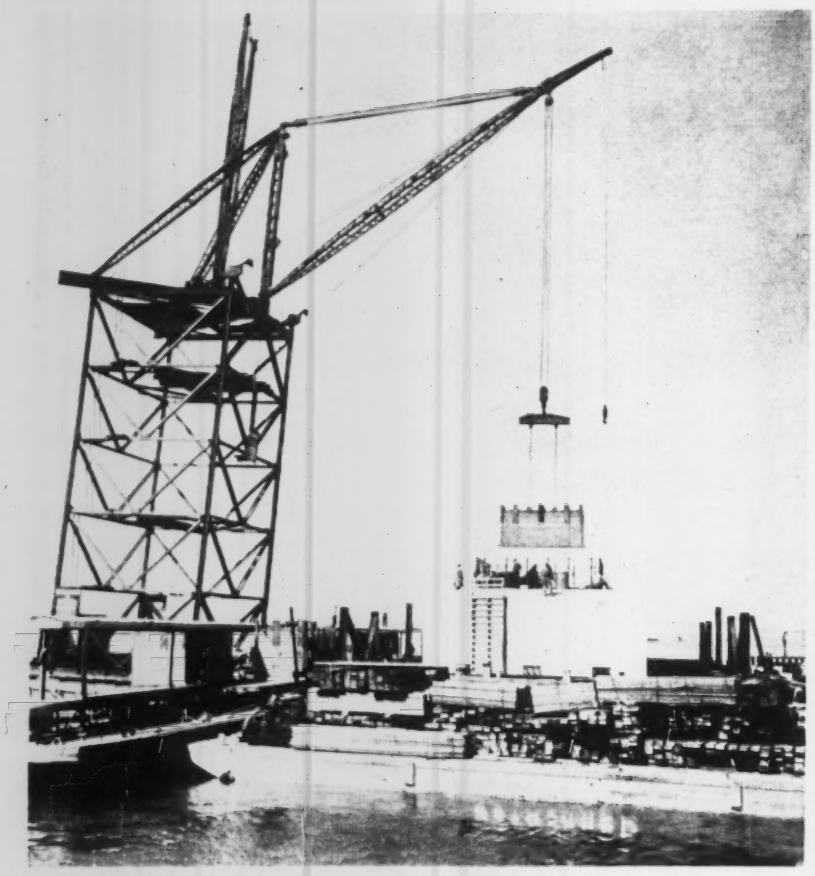


Throgs Neck Gets First Steel

A 75-ton assembly first superstructure steel for New York City's $90-million Throgs Neck Bridge is set on one of the two foundations that will support the Bronx tower. The 2,910-ft structure, scheduled for completion in 1961, will parallel the existing Bronx-Whitestone Bridge to connect upstate highways with Long Island parkways. The 360-ft high towers will carry cables for the two side spans and a 1,800-ft center span that will clear MHW by 142 ft. The superstructure is being fabricated and erected by Bethlehem Steel Corp. for Triboro Bridge and Tunnel Authority.

Vinyl Replaces Ceramic Tile in Tunnel

About 10,000 sq ft of the ceiling in the Brooklyn Battery Tunnel will be covered with a vinyl tile by midsummer. The vinyl will replace ceramic tile that has been loosened during the last few years by water seepage through the tunnel rings and ring segments.

The tube is 9,117 ft long, the longest underwater vehicular tunnel in the U.S. It has been subjected to excessive seepage since it was first opened in May, 1950. The condition has been attributed to minute movements of the rings resulting from variations in the type of strata through which they pass.

No attempt will be made to halt the seepage. In the last three years the total amount of water entering the tube has been halved by the natural action of the surrounding soil. Only from the rock areas of the bore is there now any leakage, and this is expected to stop completely within the next five years.

To forestall any fear that the tube is unsafe, the Triboro Bridge and Tunnel Authority has made extensive tests. These have proved the structural soundness of the facility. The authority says there is no danger of falling tiles. Every tile now off the roof has been taken off by inspection crews. Not one is reported to have fallen by itself.

The decision to repair the roof with vinyl rather than ceramic tile is said to be based principally on economies indicated by test repairs recently made.

New Recovery Process May Cut Pulp Mill Pollution

The big villain in pulp and paper mill contributions to stream pollution may be in for a setback. Consolidated Water Power & Paper Co. has spent $750,000 at its Wisconsin Rapids, Wis., plant on equipment for a large-scale tryout of a new process for the recovery of the cooking chemicals in sulfite pulping processes.

This recovery process works for all sulfite processes, and if it proves economically supportable, the sulfite-process spent liquors, which are the major pollutants in mill operations, should be greatly reduced.

Consolidated will not reveal what it expects in the way of reduced pollution loads. Information won't be available until a year's test of the process is completed and the results evaluated. However, one advantage of the new process cited by the paper company gives a clue to what may be expected.

In the new process the corrosive sulfite liquors are so modified, the company says, that they can be run through standard kraft-type evaporators to concentrate the solids to the same density as with kraft. Mills with kraft recovery systems have an effluent BOD load less than one-thirtieth that of sulphite process mills that do not recover their cooking chemicals.

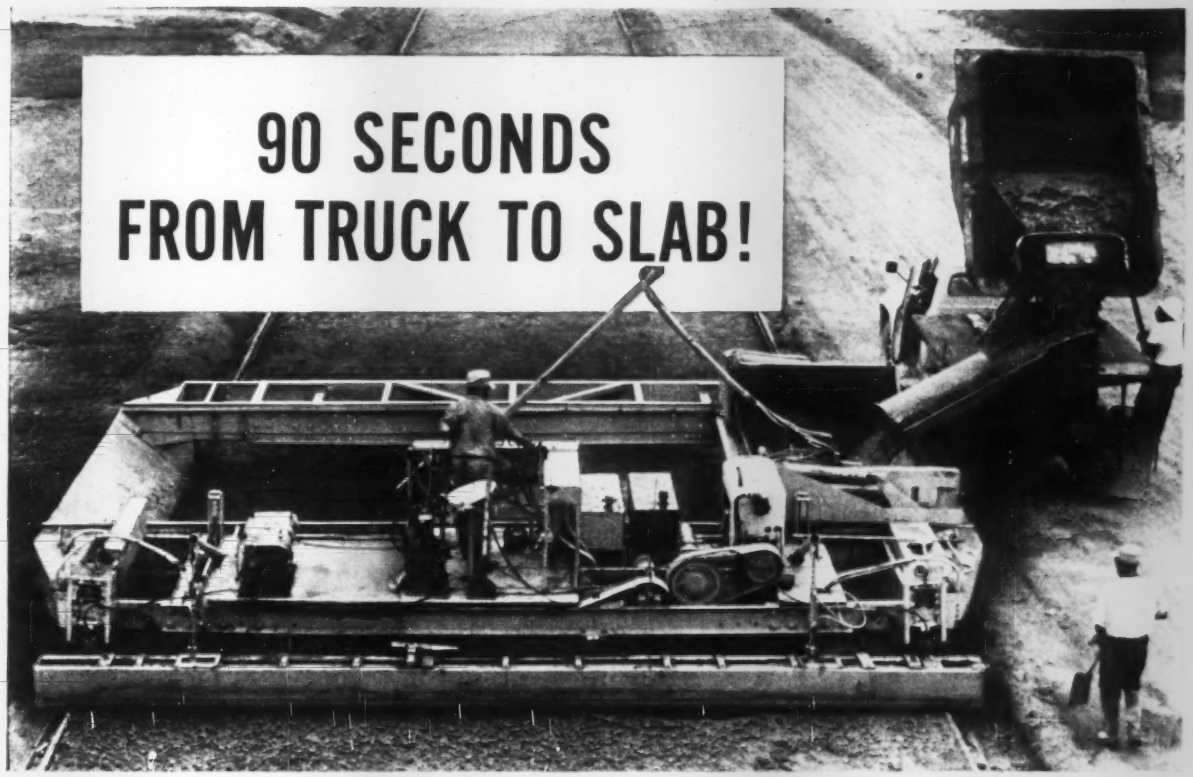
The recovery process was developed by Western Precipitation Corp., Los Angeles. The combined chemical and heat savings are expected to justify the recovery system for relatively small plant installations (100 tons pulp per day). In larger plants the recovery system should be economically justified mainly by the value of steam produced during the process.

Georgia Tech Pushing Research Reactor Plans

Georgia Institute of Technology is completing plans for a $4.5-million research reactor and associated laboratories. The institute, in the midst of a $17-million building program, hopes to have AEC approval of the reactor's technical design by this summer.

General Nuclear Engineering Corp. of Dunedin, Fla., is making the detailed plans for the reactor. Robert & Company of Atlanta are the project architects. Walter H. Zinn designed the reactor.

The reactor will be similar to the one at Massachusetts Institute of Technology. It will operate on an alloy fuel of uranium-235 and aluminum formed in thin plates and immersed in a large tank of heavy water. The entire assembly will be housed in a gas-tight steel building.



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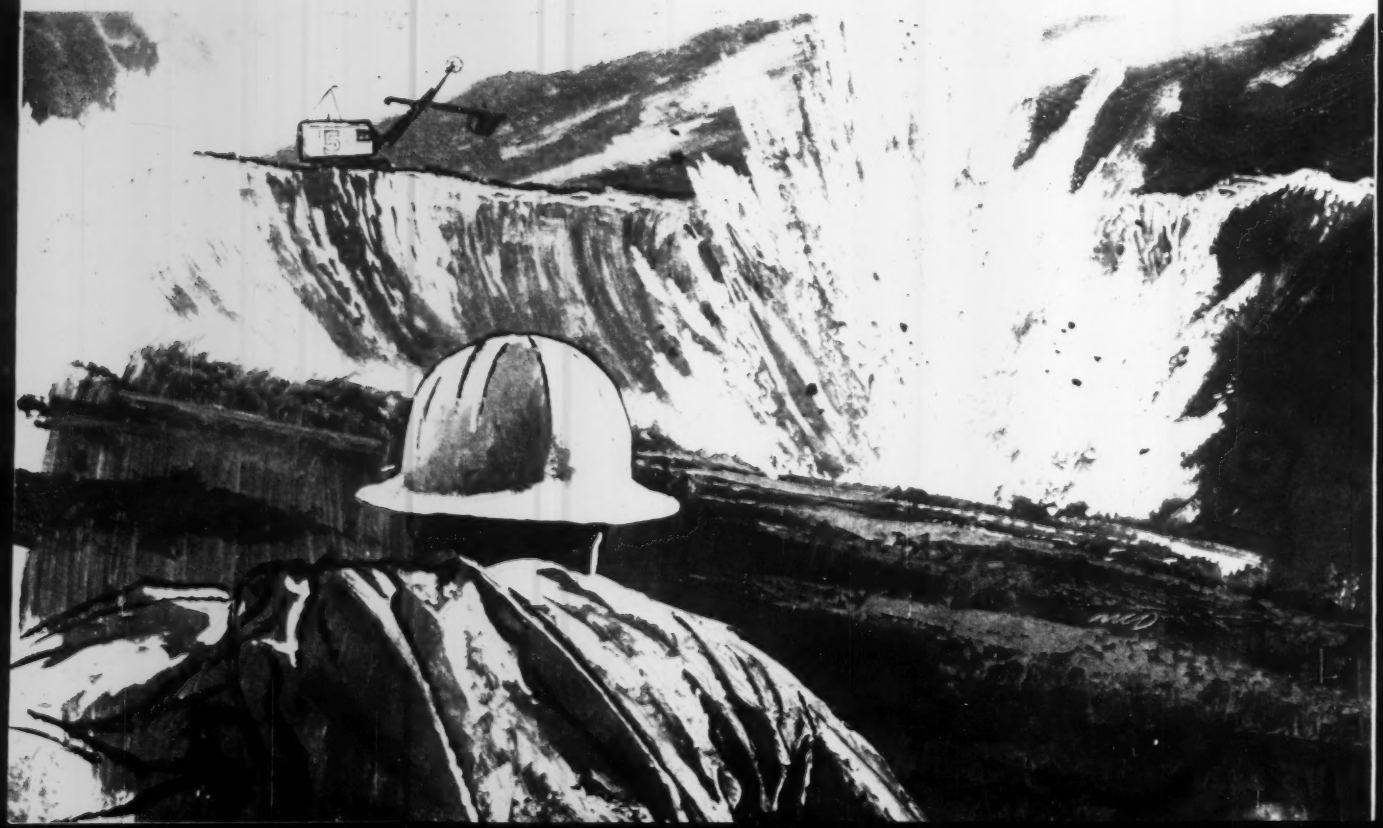

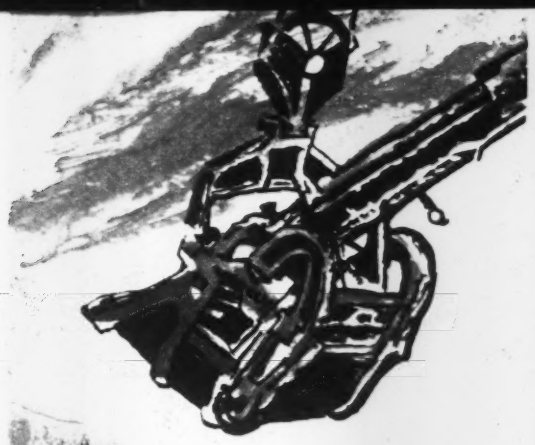

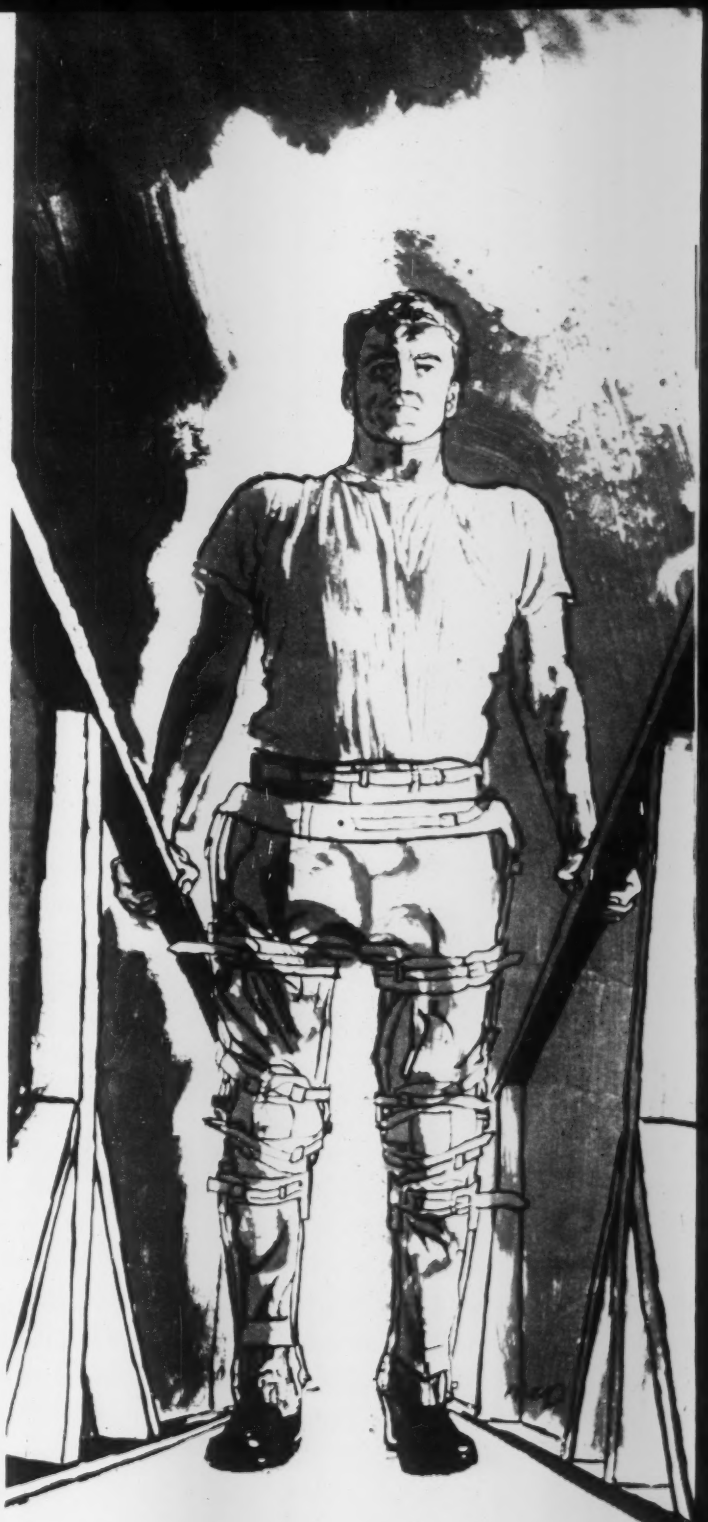

Above

Accident victim gets quick help. If there's an accident on your job, a Liberty claimsman makes sure that proper medical care is available. Where large projects require it, one of these men lives right on the job. This fast, thorough claims service has helped hundreds of construction policyholders cut compensation costs.

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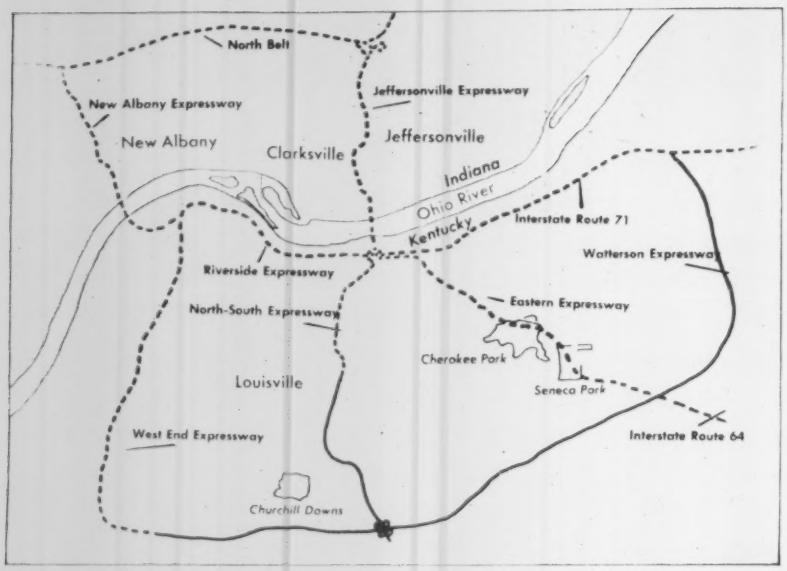
Left

Dynamite under control. To protect buildings from blast damage, Liberty's engineers developed a ground-vibration recording instrument that tells how much dynamite can safely be used in a particular locale. The "accelerograph," as it is called, has helped cut insurance costs on such jobs as the New York Thruway and the Massachusetts Turnpike.



Louisville Roads Get Go-Ahead

Approval of a controversial route for its Eastern Expressway has cleared the way for a full $250-million scheme of Interstate highways within metropolitan Louisville, Ky.

The project, already under construction, will include 49.9 miles of expressway and two bridges across the Ohio River. The freeways will form a complete loop around the city.

Priority will be given to erection of the two bridges. Louisville will be connected with New Albany, Ind., by a $12-million, double-deck span with three lanes on each level (ENR Jan. 8, p. 24). Bids for the substructure will be opened May 28 in New Albany; the estimate is about $10.5 million. Hazelet & Erdal, Louisville, is the consulting firm on both bridges.

Plans for the crossing at Jeffersonville, Ind., have not been announced.

The proposed expressways, their lengths and their estimated construction costs are:

- Interstate 64, 20.1 miles, $67.2 million.
- Interstate 71, 8.1 miles, $15.1 million.
- Interstate 65, 8.5 miles, $44.2 million.
- New Albany North Belt, 5.7 miles, $8.1 million.
- West End Expressway, 7.5 miles, $22 million.

Cost estimates were part of a study made on the metropolitan Louisville Interstate system by Edwards & Kelcey, Newark, N. J., consulting firm. From $80 million to $100 million will be spent on rights-of-way.

Interstate 64 will enter the Louisville area from the east as a four-lane highway. In the city it will be known as the Eastern Expressway. Near the riverfront it will join Interstate 71 and continue westward as the six-lane Riverside Expressway. At the juncture of the Riverside Expressway and the West End Expressway the route will become the New Albany Expressway. It will cross the Ohio River over the proposed New Albany Bridge and go north to join the New Albany North Belt.

The Eastern Expressway will cut through Cherokee and Seneca Parks in eastern Louisville. The opposition of local groups delayed the location of these two sections.

Barstow, Mulligan & Vollmer, New York City consultants, have been engaged to draw preliminary plans for the Eastern Expressway.

Interstate 71 will enter the city from the Northeast, interchange with the Watterson Expressway at its Northern Terminus and meet with Interstate 64 at the Eastern end of the Riverside Expressway.

Interstate 65 will continue northward from its present terminus in mid-Louisville and cross the Ohio River over the proposed Jeffersonville Bridge. North of the river it will meet the approaches of the existing Clark Memorial Bridge, go northward in four lanes to an interchange with the proposed New Albany North Belt.

The New Albany North Belt will run across the northwest side of the Louisville metropolitan area, connecting Interstate 64 with Interstate 65.

The West End Expressway will connect at the north with the Riverside Expressway and at the south with the western terminus of the partially completed Watterson Expressway.

Bids will be opened for completion of the New Albany North Belt May 28.

A 40-mile stretch of controlled-access highway is planned by the Kentucky Highway Department for Louisville's suburban area southeast of the city.

The highway, estimated to cost $20 million, will not be on the Interstate System.

Around the Country . . .

• **Missile contract**—Doyle & Russell, Norfolk, Va., has been awarded a $2-million contract to build two launching pads, a block house and support facilities at Wallops Island, Va., the testing station of the National Aeronautics and Space Administration. Seven companies bid.

• **Just in case**—Civil defense shelters could be included in urban renewal projects at no cost to states or localities under terms of a bill, S. 1680.

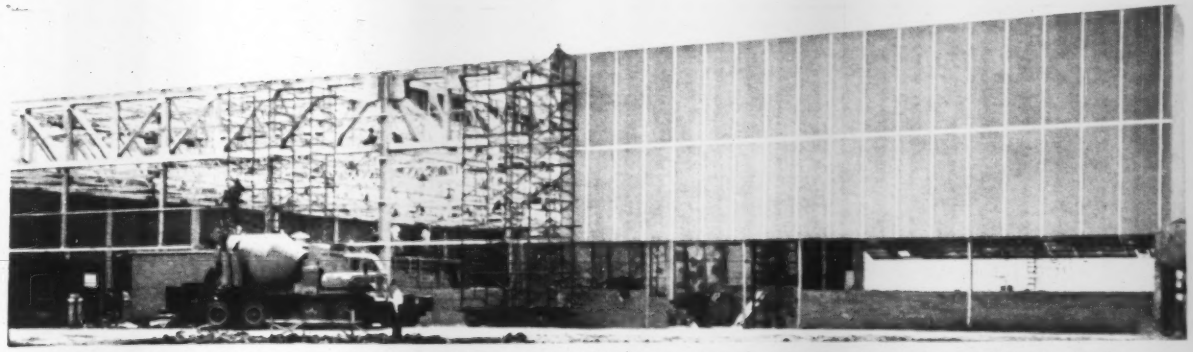
• **Heliport survey**—The Philadelphia City Planning Commission awarded an $8,000 contract to James C. Buckley, Inc., New York City engineering company, to make a survey for three permanent heliports for the city. A temporary heliport, near City Hall, will be in operation by the end of the year pending completion of the permanent installations.

• **Cowlitz to go to voters**—The Washington State legislature has failed to act on an initiative designed to halt the City of Tacoma from building hydroelectric dams on the Cowlitz River (ENR Mar. 9, p. 48). The initiative now, under state law must go before the voters.

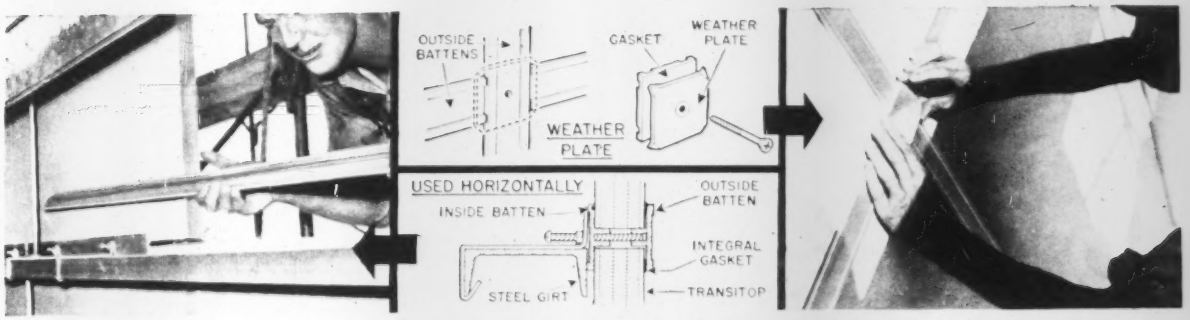
• **Searching for a tunnel route**—Hoping to find an impermeable, fault-free chalk layer thick enough for safe tunneling, a British firm has begun test borings under the English Cannel.

• **The lid's off**—The Milwaukee Common Council has repealed the 250-ft height limitation ordinance on downtown buildings. The new ordinance offers premium floor space to developers who set their buildings back from the street line and who provide setbacks on higher stories.

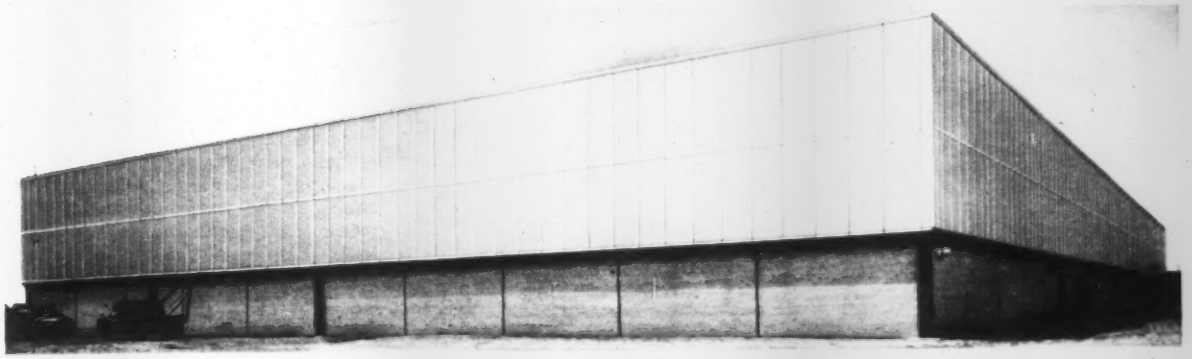
Johns-Manville ASBESTOS TRANSITOP® Panels provide swift, economical, weathertight curtain wall construction



Transitop panels are big . . . 4′ wide x 8′ to 12′ high . . . finish large areas fast . . . structurally strong yet light in weight . . . thicknesses from 11/16″ to 2″. Panels consist of an insulating core with an asbestos facing on both sides.



H & B Aluminum Battens and Accessories provide neat horizontal and vertical joints that . . . simplify wall erection . . . adjust in three dimensions . . . withstand weather, vibration, wind load and thermal change.



Transitop panels are an attractive stone gray in appearance. Pre-primed panels also available for any type of paint finish if color is desired. Using H & B Aluminum Battens, panels can be demounted and reused when constructing building additions.

SEND FOR ILLUSTRATED BROCHURE

See for yourself how J-M Transitop structural panels can be used for economical construction of exterior or interior walls and roof decks. Write Johns-Manville, Box 158, New York 16, N. Y. In Canada, Port Credit, Ont.

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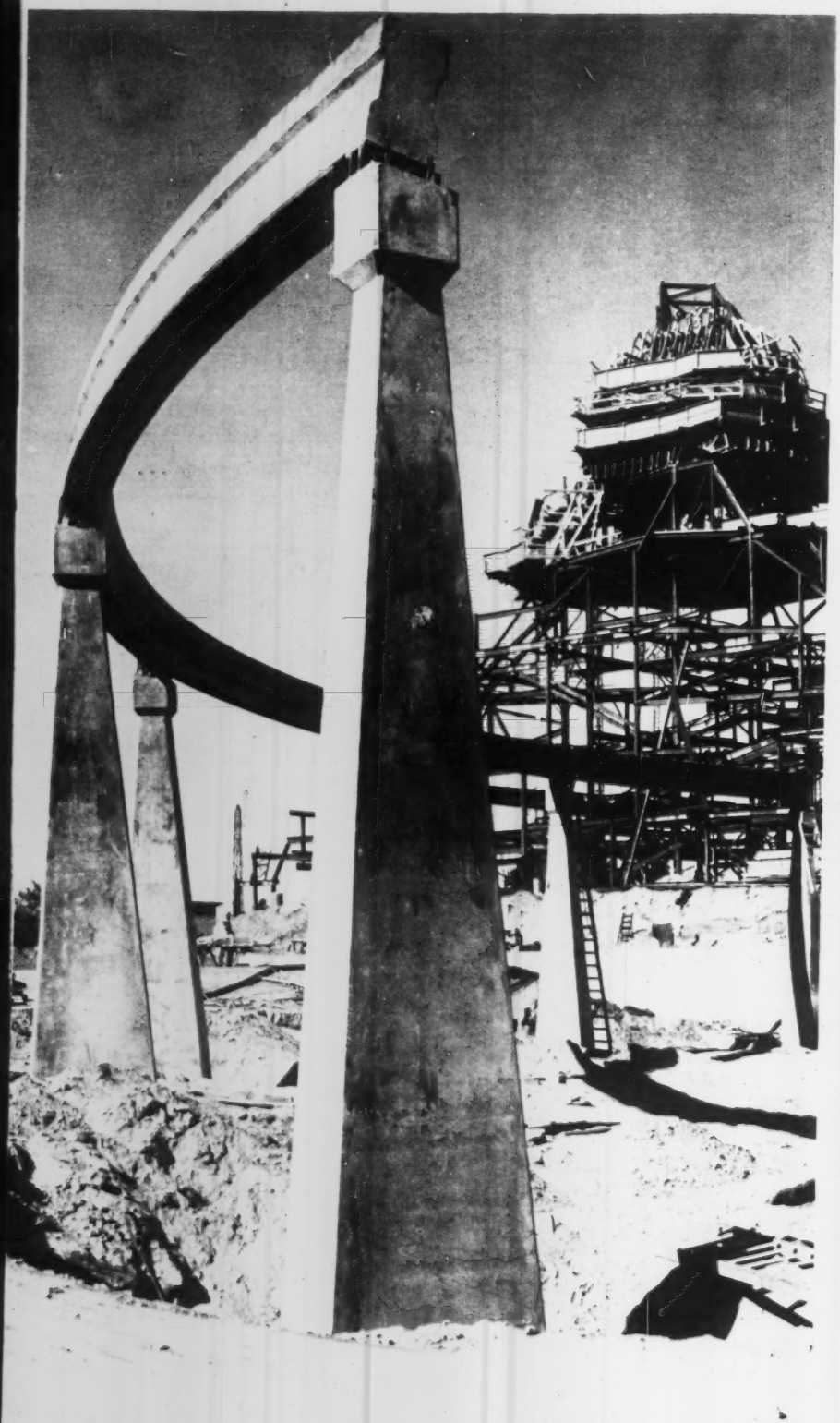


Monorail track curves in front of frame for Matterhorn replica.

Disneyland:

Exacting engineering and a tight time schedule make the $5-million construction program at Disneyland Park in Southern California anything but child's play for the general contractor, James I. Barnes Co., of Anaheim, Calif. The work requires the most careful construction administration.

Moving at a fast pace for a June 1 opening are these construction highlights:

- A monorail system where concrete girders—some curved in both horizontal and vertical directions—are cast and set to close tolerances to provide smooth riding qualities for the rubber-tired cars that will straddle the girders.
- A 150-ft-high structural steel frame that supports a scale replica of the Matterhorn (ENR Feb. 26, p. 24). Simulated bobsled runs course down and through the mountain and a cable-supported skyride pierces it.
- An underground cavern formed by massive concrete rigid frame construction to house a submarine ride. The rigid frame is designed for 600 psf live load. It spans 70 ft with a single row of columns slightly offset from the centerline.

The program is guided by Walt Disney, who personally directs the team of architects and artists in his organization, WED Enterprises.

When the park was first built, in 1955, it was thought that movieset-type, facade construction could be followed. But more solid construction was required when the idea grew into a business project expected to last many years and to entertain thousands of visitors safely. Permanent features have been added almost every year since then. This year's program is the most extensively engineered to date.

• German monorail system—The Disneyland monorail will be nearly a mile long. It is the most extensive such installation in the U.S. It employs the Alweg system developed by Dr. Axel L. Wenner-Gren and owned by the Alweg Corp. of Cologne, Germany. German engineers are assisting engineers of Disneyland, Inc., in the installation.

The Disneyland monorail will be watched closely by rapid transit authorities. There are differences between this installation and mass transit monorail systems, of course. Top speed at Disneyland will be about 20 mph; cars will

Building for Fun Is Serious Work

CONCRETE GIRDER TRACK for monorail at Disneyland crosses basin that will be an artificial lake for submarine rides. Submarines will also travel through concrete underground caverns.

be three-quarters scale, grades will be steeper—up to 7%—and curvature will be sharper—120 ft minimum.

But the primary advantages of monorail are incorporated. These are the fast acceleration of the direct-current electric drive and the smooth riding qualities of rubber tires on carefully constructed concrete beams. A further advantage of concrete cited by Alweg engineers is minimum maintenance cost.

The monorail will have trains of three or four cars, each with room for 40 persons. Front and back cars will include the direct current electric drive. The cars straddle an I-shaped girder. Each truck has six rubber-tired wheels, two riding on top of the beam and two guide wheels on each side of the beams.

Monorail girders are 17½ in. wide by 2 ft, 10½ in. deep. Length is 40 ft for all the straight girders; some curved units are slightly shorter.

Most of the girders are curved. This rules out consideration of prestressed girders. But for rapid transit installations, where there would be many more straight sections, prestressing could be considered, with a view toward developing longer spans.

The girders at Disneyland are supported on concrete pylons ranging up to 35 ft high. And the concrete is heavily reinforced to resist the 40,000-lb weight of a fully loaded car and the torsional moments induced by unequal passenger loading, wind load and centrifugal force.

• **Close beam tolerances**—To provide smooth riding characteristics, the beams had to be cast and erected to very close tolerances. Casting tolerance was limited to ¼ in. This proved to be a big problem, particularly in view of the curvature involved.

Another problem was time. The contractor had to produce more than 100 girders in just six weeks. Solution to this critical construction problem was development of steel forms that could be adjusted for both horizontal and vertical curvature. Five sets of these intricate forms were provided to develop the necessary production rate.

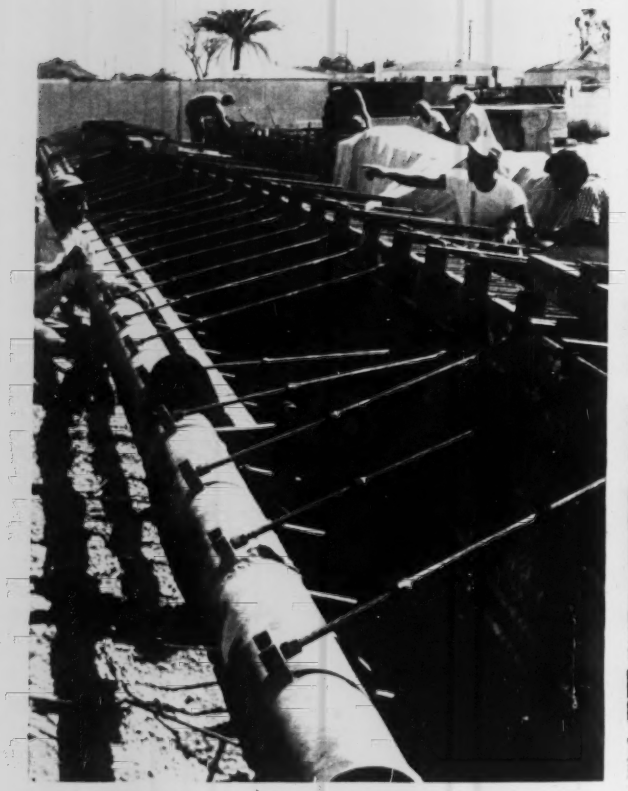
The flexible steel forms are adjustable at 2-ft intervals. They are set in a structural steel framed cradle. Vertical alignment is adjusted by screw-operated double scissors-like expansion members. Horizontal alignment is adjusted by screw-type rods bearing against a steel tube on one side of the cradle.

Reinforcing cages are prefabricated and set in place after rough adjustment of the forms. This is followed by delicate, detailed adjustment.

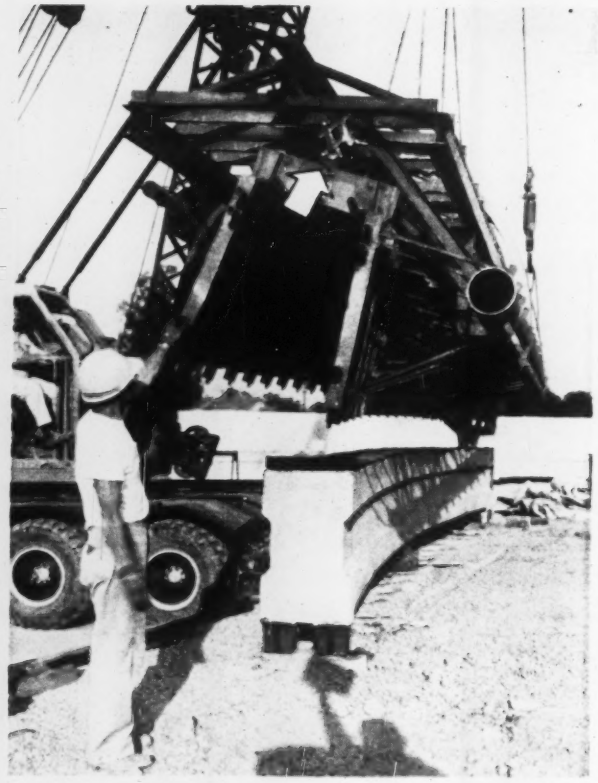
Concrete has 28-day strength of 5,500 psi. But steam curing is used to permit stripping forms after 24 hours. The cradle supporting the forms permits the complete forms to be rolled over for stripping.

One of the most critical phases of the girder construction is the end bearing detail. Each girder is supported on two castings at each end. These are attached to castings on the pylons with one end of the girders fixed. The other end has an expansion seat with a 2-in. gap left between adjacent girders. Shims in the pylon casting can adjust for both horizontal and vertical alignment. And the end bearings can be adjusted each year, if necessary.

High-strength steel bolts, 1¼ in. di-



STEEL FORMS for monorail adjust for curvature. Rods bear against steel pipe for horizontal adjustment.



GIRDERS ARE STRIPPED in forms by inverting the entire assembly. Double-scissors detail (arrow) is for vertical alignment.

meter, anchor the beams to the pylons. Specifications require a minimum ultimate strength of 145,000 psi with a minimum stress at 0.5% elongation of 75,000 psi. The bolts are stressed to 30,000 psi on installation.

A final critical phase of the monorail installation is provision for switching the trains. The Alweg design calls for a flexible aluminum beam to be used for the switch track. It's designed, of course to resist fatigue. But switching at Disneyland is needed only when shunting the trains in or out of service. So a 75-ft rigid steel beam with three point suspension is substituted.

• **Building a mountain**—The most impressive structure in the new Disneyland development is the 150-ft high replica of the Matterhorn, the famous Alpine mountain. This structure is built on a mound that rises 40 ft above the surrounding terrain. The steel frame is only 145 ft high from base plates to its top. But the mountain peak is framed in wood and plaster above this, making it by far the highest structure for many miles around the vicinity.

Only the top 80 ft is a scale model (on a 1 to 100 scale) of the Matterhorn. From there on down artistic license is used to accommodate the bobsled runs and the cavern through which the sky-ride goes.

The steel structure looks like an architect's nightmare and includes rolled shapes up to 16 in., 70 lb WF beams. The frame alone weighs 400 tons. And when support for the bobsled tracks and other steelwork is included, it rises to 600 tons.

The entire structure is mounted on a series of drilled cast-in-place friction piles running from 40 to 60 ft deep. Interior piles are 30-in. diameter and perimeter piles are 24-in. diameter.

• **Submarine cavern**—Visitors to Disneyland Park will recognize the Matterhorn and the monorail as interesting structures. But they may overlook the underground cavern constructed for the submarine ride. Although out of sight, it too is a significant engineering structure.

The submarine ride travels in the cavern some 800 ft in a parabolic path. For most of this length the rigid frame concrete structure is 70 ft wide with a single row of columns set off center. The rigid frame structure is like highway interchange construction. Wall height is 17 ft. Ten feet of this to be filled with water, with a 7-ft air space above.

Concrete at the haunch of the rigid frame is 2½ ft thick, tapering to about 2 ft at midspan. Additional support for the live load ranging from 600 to 1,000 psf is provided by transverse beams on top of the rigid frame structure. Reason for some of the extra strengthening is that the structure carries monorail piers and supports other ride structures.

The central columns are 40 ft on centers and support a 7-ft-deep beam. The entire wall length is supported by belled cassions. Columns are supported by similar cassions with bells up to 13-ft diameter.

Extent of the cavern construction can be seen in the 740 tons of reinforcing steel used. Central columns, for example, include a forest of No. 14 bars, butt welded instead of lapped. Some 12,000 cu yd of concrete is involved in the cavern, with 25,000 cu yd to be poured on the entire job.

First phase of cavern construction was excavation of 60,000 cu yd of material from the site. Much of this was wasted, but nearly 20,000 cu yd was stockpiled outside the park for later backfilling. Then more than 100 belled cassions were drilled, with about 10 to 12 a day being maximum progress. These were followed immediately with foundation and wall construction.

Walls were cast in panels about 22 ft

ON ALL YOUR BIG CONTRACTS...

Clam-action 4-in-1 can "take over" an endless list of big-pay jobs!

"Back-dragging" bank material by the truck-load, this TD-15 4-in-1 shows one (of dozens!) of its exclusive clamshell applications! This long-reaching action can also grade slopes; clean ditches; give space-saving, one-gulp bucket-full bites of loose materials; load stumps or other "impossibles"; give positive bottom-dumping that eliminates the sticky materials problem!

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Prove to yourself an International Drott TD-15 or TD-20 4-in-1 gives you mass-production efficiency, along with versatility unlimited! Match exclusive 4-in-1 pry-action break-out and loading capacity against any obsolete single-action loader! Measure shock-swallowing Hydro-Spring advantages. Count the machines a 4-in-1 can replace, to save you up to $100,000 on equipment. See your International Drott Distributor for a demonstration!

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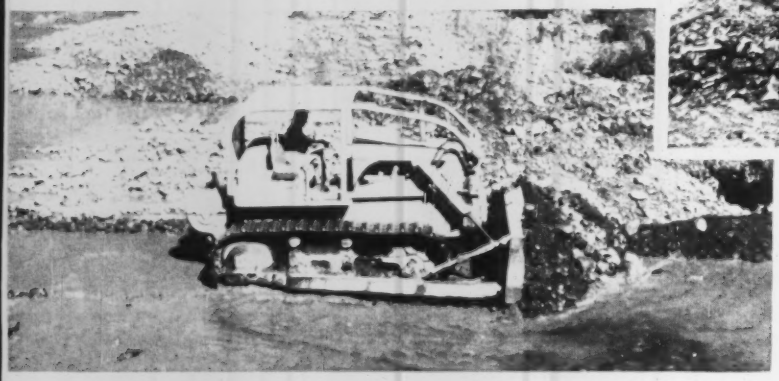
Only proven International® delivers bonus

Blade a bonus load—flip the Shuttle-Bar—and you reverse the TD-15 instantly and reposition fast! New TD-20 and TD-15 owners, the country over, are reporting "next-size-bigger" production from these proven models!



Bonus track roller life really counts for this TD-20 owner, working in the "grinding compound" of water-borne granite particles. Precision-lapped, full-floating, metal-to-metal seals in proven International track rollers provide never-before-equalled protection to keep out abrasives and keep lubricant in!

Years-Proven Planet Power Steering, unequalled undercarriage strength and ease of control make the TD-24 what many contractors call "the rock-dozing special" of all king-sized crawlers. "Live track" steering with both tracks pulling *full time* means bigger loads every push!

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International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill.

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dependability tough-job performance!

Only International provides heavy-duty-type track-rollers—the "originals," since 1956, with cartridge-type, floating metal-to-metal seals. Only International gives you heavy-duty roller bushings and king-size lube reservoirs, plus husky, big-diameter track roller shafts. Exclusive pressure relief passages guarantee positive prevention of seal blow-out or damage from power lubricators! Measure the advantages of proven International roller design in longer wear life, and downtime prevention!

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Only International gives you proven exclusive cycle-speeding, load-increasing features—that pile up bonus production on tough or easy jobs. Only the TD-24 gives you Planet Power "live" track steering advantages—eliminates "dead-track drag"—pulls or pushes the same big loads on turns or straightaways—gives Hi-Lo power-shifting of either track on-the-go! And both TD-20 and TD-15 give you 6-speed, full-reverse transmissions with "single-stick" shift, and fast Shuttle-Bar forward-reverse control!

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See what it means in tough-job performance—and all-job bonus production—to arm your operators with proven International crawler advantages. See your International Construction Equipment Distributor for a demonstration!

New 19 and 27

- 375 and 250 hp engines
- 30% less body weight
- 14% faster haul speeds

NEW "95" Payhauler

STRUCK: 18 cu. yd. PAYLOAD: 27 tons

The new Model "95" Payhauler moves payloads faster and for less money than any 27-ton rear dump with cycle-speeding 375 hp under the hood and elimination of all free-loading body weight.

Here's why the new "95" earns more for you:

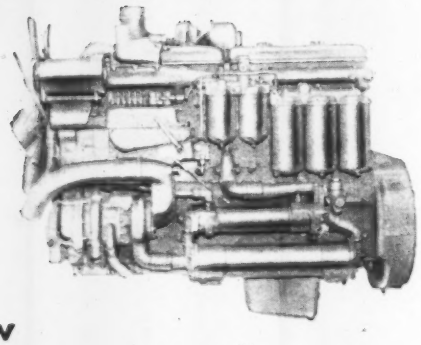
New 375 hp turbo-charged International diesel engine plus rugged yet tons-lighter corrugated body gives best power-to-weight ratio of all similar rigs, helps move payloads 14% faster on all grades both up and down.

Speeds to match all loads and roads with choice of torque-converter with powershift, or 9-speed, constant-mesh transmission. Haul speeds to 38 mph.

Faster reversing, up to 7.1 mph with gear-drive model speeds spotting or positioning for dumping.

Load-speeding safety and unequalled operating ease with power steering, torqmatic braking, and full-sweep vision.

11-second dumping with exclusive inverted hoist action and industry-topping snubber mechanism.



Great new 375 hp and 250 engines

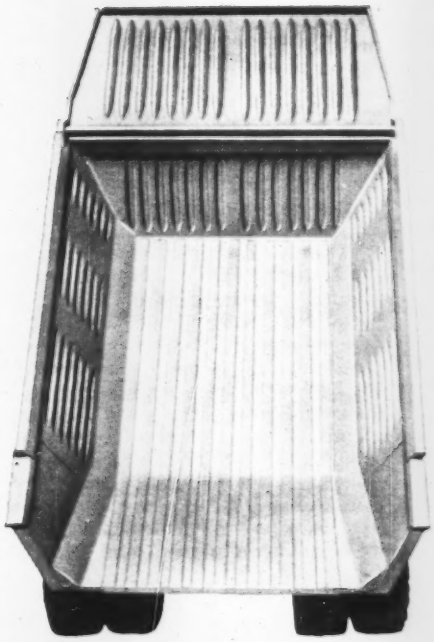
Both Payhauler models have a big power plus under the hood. The "95" is powered by this all-new International DT-817 375 hp turbo-charged diesel while the "65" is powered by the same basic engine, the naturally aspirated D-817, that develops 250 dependable low cost hp. Both are heavy-duty, high-speed, direct-start, 4-cycle, 6-cylinder models thoroughly proved in six years of development and testing. Both are products of 26 years of International experience building heavy-duty diesels for rugged applications.

— ton Payhauler® models

NEW "65" Payhauler STRUCK: 12.5 cu. yd. PAYLOAD: 19 tons

The new Model "65" Payhauler sets new performance standards as the only 19-ton off-highway truck on the market...new 250 hp naturally aspirated International diesel engine...best power-to-weight ratio...new rock-ribbed body with tons less deadweight...10-speed constant-mesh transmission that helps bonus power speed more paydirt...speeds to 36.37 mph...and cab comfort and safety features that let the operator keep his mind on his work rather than on truck controls.

For a refreshing experience in what's new in rear dumps, invite your International Construction Equipment Distributor to bring either Payhauler to your job for a showdown demonstration against your present haulers.



Biggest body improvement in 25 years

International corrugated quarry and standard bodies are the industry's biggest body improvement in 25 years. Corrugated panels—with triple the strength of conventional flat steel plates—cut body weight 30% in sides, front, canopy, and subfloor at no reduction in strength or protection to operators. Loads being dropped onto the body wear floor are cushioned by up to 26 corrugations in the sub-floor. Patent applied for heated bodies have no cold spots, create no damaging exhaust back pressure. Benefit: haul payloads without hauling up to 5000 pounds of free-loading steel each cycle.

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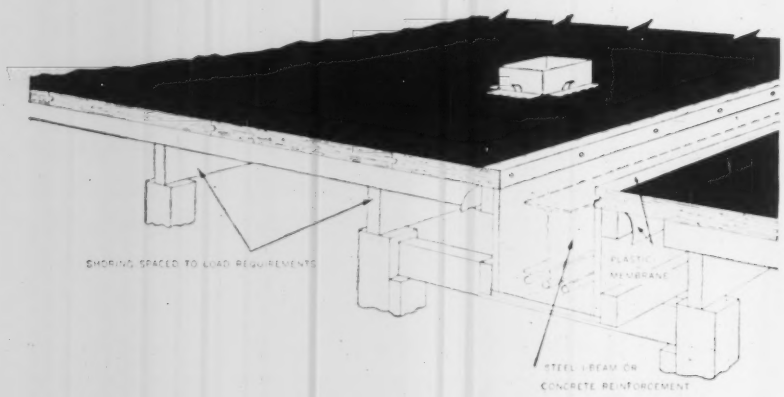
NEW USE FOR STRUCTURAL

Tectum®



Tectum Form Plank Becomes Permanent Acoustical Ceiling After Concrete Floor-Ceiling Is Poured

Tectum Form Plank makes a natural form liner for reinforced concrete slabs. The advantage with the Tectum method is this: after the concrete has been poured and has cured, the Tectum remains in place, firmly bonded to the concrete slab, as an effective acoustical ceiling.

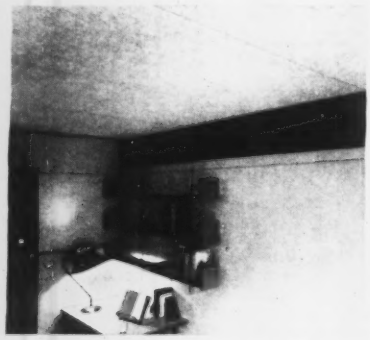
HERE'S WHAT YOU SAVE

In the drawing above, a typical form is illustrated. Because Tectum has high structural strength, it costs less for shoring. Tectum is available in custom lengths, saves cutting on the job and the inevitable waste. Forms are handled only once; they are put in place and left in place. No stripping charges are involved. Tectum eliminates the need for grinding or refinishing concrete ceilings, eliminates need for separate acoustical treatment, has a genuine warmth without special decorating after treatments.

TECTUM HAS MULTIPLE VALUES AS A MATERIAL

Attractively textured Tectum is both insulating and acoustical. It resists fungus, rot and termites. It may be painted repeatedly without impairing acoustical values. And Tectum is firesafe, is rated noncombustible by Underwriters Laboratories, Inc. Available in thicknesses from 1" to 3".

Tectum is represented in your area by competent distributors who will be glad to explain the value of the Tectum method for form liner, roof deck, sidewall or acoustical requirements of all types. Regional and district offices in all leading areas, staffed by factory trained application engineers. Plants in Newark, Ohio and Arkadelphia, Arkansas. *Tectum Corporation, Newark, Ohio.*



This modern dormitory room with Tectum form plank ceilings transforms cold, bleak concrete construction into warm, inviting living quarters. *Reed College Men's Dormitory, Portland. Architect: Shell, Hoxt and Farnham. Contractor: Juhr & Sons*

. . . Building for fun

long. Forms were faced with 5-in.-thick waterproof plywood and moved as complete units. Panels were cast in alternate sections, with forms stripped after three days. Then the intermediate sections were cast. Each wall section contained about 66 cu yd of concrete.

Roof concreting involved pours up to 250 cu yd at a time. Access to the roof structure was difficult, being provided by a 25-ton crane handling a 4-cu-yd bucket. No backfilling around the structure was possible until the roof deck had been cast.

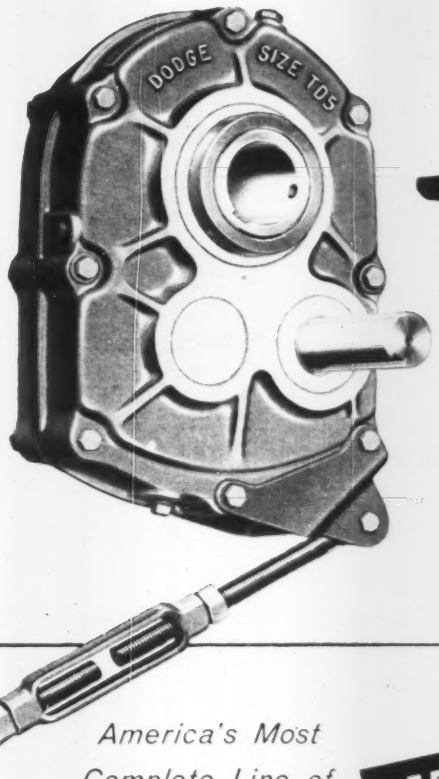
The submarine ride actually starts in an artificial lake outside the caverns. The ships will seat 40 persons, with each seat adjacent to a porthole. Propulsion is by diesel electric motor. The entire floating unit steered by a guide rail. After circling in the lake, the submarine will pierce a waterfall and move into the cavern. Here there will be many underwater exhibits, such as a replica of the lost City of Atlantis, a simulated run under the polar ice cap, giant squid, sharks and sunken treasure.

An unusual phase of this operation is the necessity for keeping the water clear. But for artistic effect, a slight degree of murkiness is desired. A 1,500 gpm sand filter installation is being constructed to treat the water. This includes a series of 90x48-in. enclosed sand filter units.

Extending from the underground cavern at one point is a drydock. There will be eight submarines in all, but the drydock will accommodate only one at a time. They will be launched in the drydock and taken out of service from time to time for maintenance and inspection.

• **Who did it** Joseph W. Fowler, vice president of Disneyland, Inc., is in charge of all engineering, construction and maintenance. John C. Wise heads up the engineering work for Disneyland. Wheeler and Gray served as consulting structural engineers and J. S. Hamel as consulting mechanical engineer. L. LeRoy Crandall and Associates performed foundation investigations.

John B. Allen is in over-all charge of the construction effort for the James I. Barnes Construction Co. Wayne Cox is project manager, Lou Roth is coordinator and Bill Palmer is field superintendent. Steel erection for the Matterhorn was by American Bridge Co. All reinforcing steel is by Ceco Steel Corp. The steel forms for the monorail units were designed and built by Leonard's Precision Machine Works of Anaheim, Calif.; and casting of the elements is being done by Carbon Dubbs Co. of Staton, Calif.



Torque-Arm

THE DODGE DEVELOPMENT THAT CHANGED THE NATION'S HABITS OF SPEED REDUCTION

America's Most Complete Line of Shaft Mounted Speed Reducers

55 MODELS

- 1 to 200 hp. at 100 rpm!
- Output speeds from 10 to 378 rpm!
- Single Reduction
- Double Reduction
- 5 to 1 Ratio
- 15 to 1 Ratio
- 25 to 1 Ratio
- Any speed ratio up to 150 to 1 obtainable by selection of pre-determined combination of reducer and V-belt drive.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."

In fewer than ten years, the range of Torque-Arm Shaft Mounted Speed Reducers has increased from 6 to 55 models, to meet the ever increasing demand for this improved method of speed reduction.

By eliminating foundation, sliding base and flexible coupling this modern speed reducer has saved untold installation time and untold dollars of cost.

The rugged semisteel housing developed by Dodge has never been improved upon. It is corrosion resistant—and it has the strength to hold bearing seats in line for the life of the unit.

Dodge design provides wide spacing for the bearings. Loads are carried easily, contributing to Torque-Arm's long life and very high efficiency. The gears are finest quality—helical, heat treated steel.

Torque-Arm mounts vertically or horizontally in any position around the driven shaft. It locks to the shaft on *both* sides of the housing. The holes in the output hub provide simple removal with puller. Overload release and built-in backstop are optional.

Dodge Torque-Arm is America's most widely used shaft mounted speed reducer. It is stocked by your local Dodge Distributor. Ask him. Or write us for bulletin.

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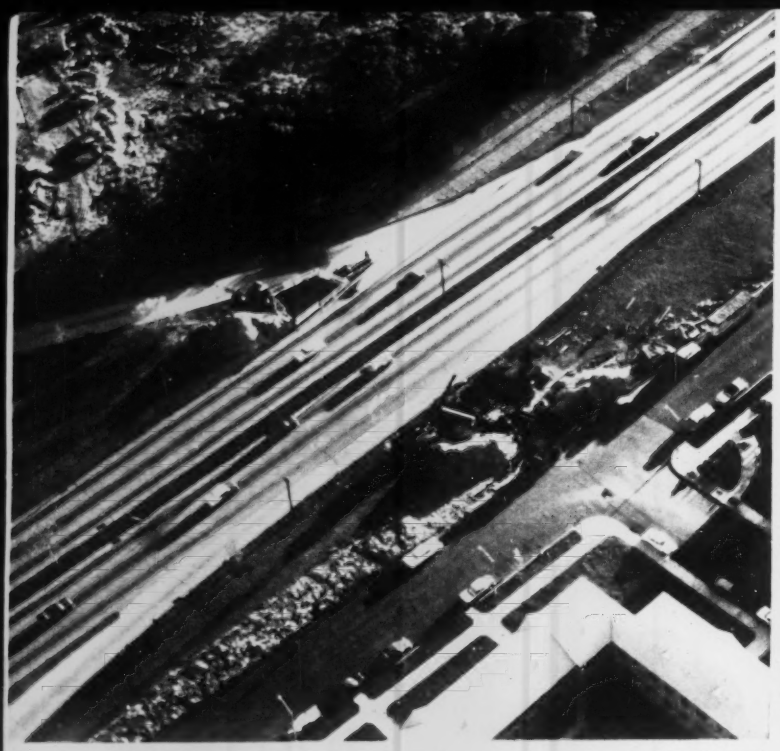
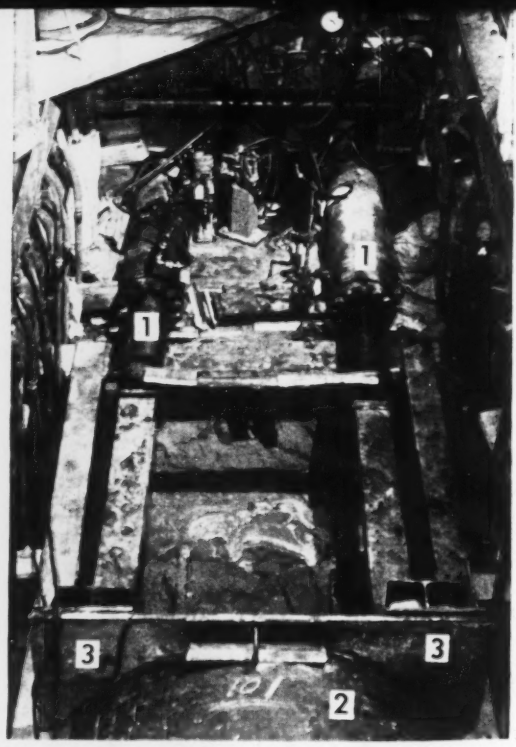


WHILE TRAFFIC FLOWED as usual, contractor jacked a 66-inch steel pipe 102 ft through the fill beneath a six-lane highway in New York City.



200-TON JACKS (1) act on steel pipe (2) through load-spreading plates (3).

Jacks Push Big Pipe Under a Highway

Spencer, White & Prentis of New York City recently jacked a 66-inch steel pipe under a six-lane highway in New York City. This is one of the biggest pipes ever placed this way.

The pipe is 102 ft long. It is a casing for a 48-inch concrete water main.

From a continuous record of jacking pressures, the contractor observed that:

• The pipe's tendency to "freeze" in place during shutdowns was negligible for eight-hour shutdowns but a big factor for longer stoppages.

• Unit frictional resistance between the earth and pipe dropped as pipe penetration increased.

It took 16 shifts to jack the casing through the fill. The job was on one shift a day part of the time, two shifts the rest of the time.

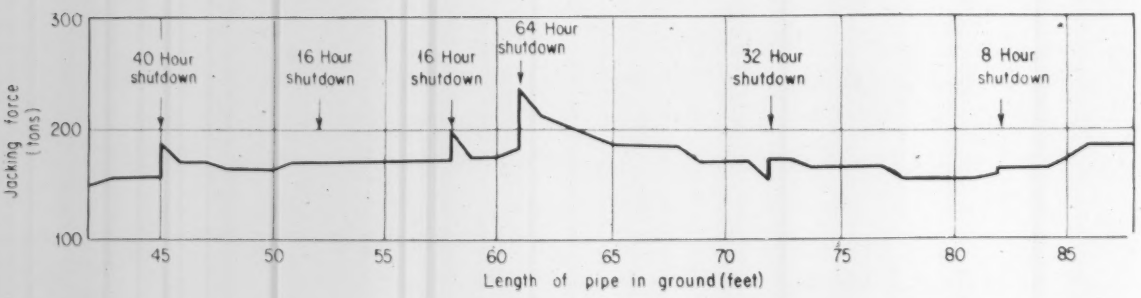
During two-shift operation, resistance to jacking at start up averaged only 4% higher than resistance just before the daily eight-hour shutdown. But during one-shift operation, resistance after the 16-hour shutdown was up 28%. And after a 64-hour weekend shutdown, required jacking pressure was 41% higher on the average than the pressure at the time the job stopped.

Soil at the jacking level is fine sand, placed hydraulically. The contractor had anticipated frictional resistance of 250 to 350 lb per sq ft of outside pipe surface. This proved reasonably close except for the first quarter of the pipe's length.

Total jacking load during the first 25 ft of driving reached 150 tons maximum. Unit resistance hit a peak above 1,600 psf.

The remaining three-quarters of the pipe length required a jacking load of from 150 to 250 tons. Unit resistance varied between 250 and 500 psf most of the distance. Near the end of the run, it declined to a low just over 200 psf.

• **How job was done**—The contractor set up the jacking operation in a pit



JACKING LOAD had to be increased sharply after most shutdowns. The longer the shutdown, the greater the increase. Contrary to expectation, the load did not get progressively greater as the length of pipe in the ground increased.

29,000 lbs. - and all muscle!

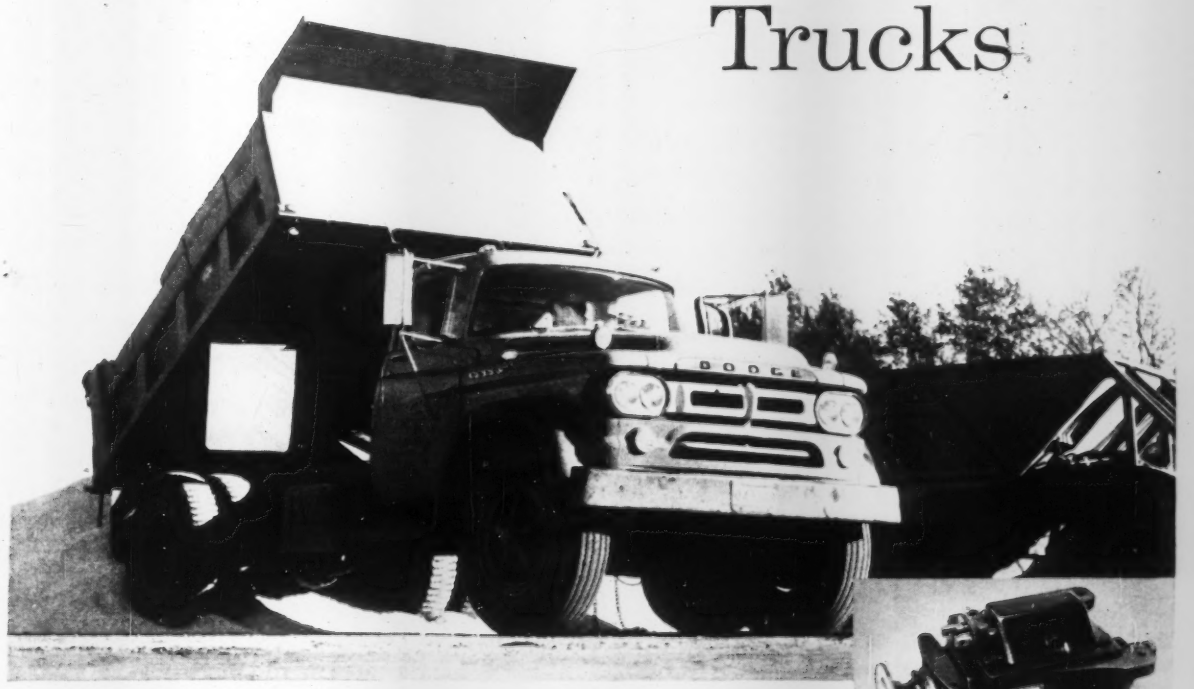
Bring on those gruelling, earth-moving, profit-making jobs and just watch this mighty Dodge D800 dump truck clean them up.

It weighs in at 29,000 lbs. maximum G.V.W. It's big and tough. It's packed with power and the right equipment to get the job done in short order. Special transmission, if you need it—special axle, springs, brakes—whatever your kind of trucking requires.

Big-load hauling was never easier . . . never more profitable . . . than in new, improved '59 Dodge "Job-Rated" heavy-duty trucks with G.V.W.'s to 49,000 lbs., G.C.W.'s to 65,000 lbs.

Your Dodge dealer has full information. He'd like nothing better than to talk to you, and tell you why . . .

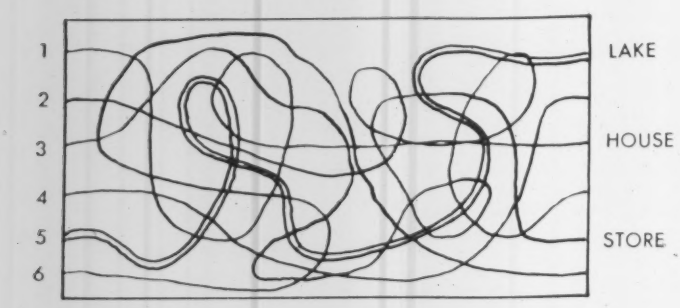
today,
it's real smart
to choose **Dodge Trucks**



To provide maximum flexibility in loaded, off-road service and at unloaded highway speeds, a 4-speed auxiliary transmission is now offered for all conventional and tandem models in the Dodge 800 and 900 series. Another benefit for more truck buyers!

TRICKY TRACINGS

Can you trace the trail that leads to the store? See answer below.



FOLLOW THE TREND TO ARKWRIGHT TRACING CLOTH

More and more engineers, architects and draftsmen are turning to Arkwright Tracing Cloth for fast, accurate workmanship. Here's why.

Even on detailed drawings, Arkwright Cloths assure crisp, clean lines. Their superior surfaces are completely free of pinholes, coarse threads, and other imperfections which cause blobbing and feathering. Their durable finish withstands repeated erasures . . . resists fraying, tearing and curling . . . adds longer life to the lines of your drawings. In the drawing above, line three is the line you're looking for! And when you reach the store ask for Arkwright.

Always look for the rolls with the blue line that identifies "America's Standard". Write for samples of Arkwright Tracing Cloth today. **Arkwright Finishing Company, Fiskeville, Rhode Island**

ARKWRIGHT
Tracing Cloths
AMERICA'S STANDARD FOR OVER 35 YEARS

. . . Jacks push pipe

27x10 ft by 17 ft deep. It was fully sheeted with 3-in.-thick planks, held in place by steel walers. Groundwater level 9 ft below ground surface made it necessary to de-water the pit. The general contractor installed well points for this purpose. Well-point pumps were located in a pit adjacent to the jacking excavation.

Two 200-ton hydraulic jacks with 44-inch stroke were used for the job. The force was applied midway between top and bottom of the pipe to the rim of the pipe at each end of a horizontal diameter. But the load was applied through stiffened steel plates, which distributed the force around most of the pipe periphery.

The pipe was placed in 16-ft lengths. It took five strokes of the jacks to advance each length. On completion of a stroke, the jacks were retracted and short lengths of steel beam were placed between the pistons and the stiffened plates.

When all but a foot of a section had been jacked into the fill, the crew welded on a new 16-ft section.

The 102-ft pipe was held to line and grade tolerances of one inch. Something approaching this accuracy was necessary because the casing had to pass close beneath a 48-inch sewer at the far end of the run. It cleared the sewer by eight inches.

After the casing was in place, the contractor built a concrete cradle along the bottom of the casing and jacked the 48-in. reinforced concrete water pipe through. He speeded up this operation by substituting lighter, longer-stroke jacks—two 70-ton units with 60-inch stroke. The required jacking force just about equaled the weight of the concrete pipe—57 tons.

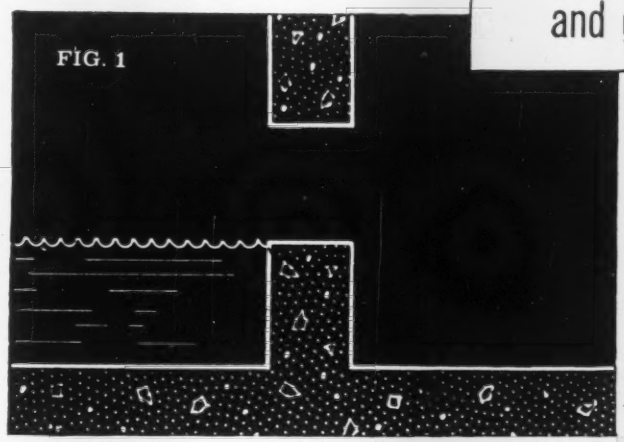
In the final phase of the crossing job, the contractor bulkheaded the ends of the 4½-inch annular space between steel casing and concrete pipe, and pumped grout into the space. A grout mixer with enough centrifugal action to serve also as a low-head pump did this job in eight hours.

Jacking the steel casing took three weeks. The entire under-road crossing took seven weeks.

• **Who did it** Spencer, White & Prentis was subcontractor for the crossing. Vincent Leary supervised the ten-man field operation for the firm, under the direction of Don McKinley, general superintendent, and Henry Goldfinger, project engineer. Vincent Suggese was project engineer for the general contractor, J & J Construction Co., New York City. Frank Nola was field engineer for the owner, New York City's Department of Water Supply, Gas & Electricity.

SPECIFY RODNEY HUNT
HY-Q FLUSH BOTTOM SLUICE GATES
and get these **6** design advantages

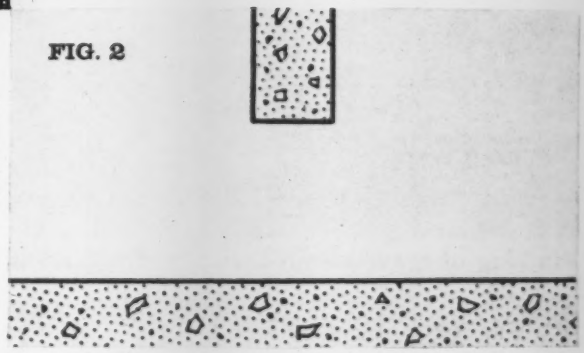
FIG. 1

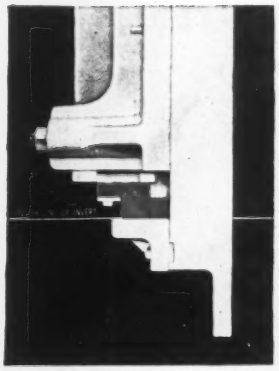


In many installations it is imperative to effect complete drainage of channel or chamber. With a conventional gate mounted on a vertical sill that may rise as much as 18 inches above the channel floor (Fig. 1), pumping, piping, or other drainage is necessary. The Rodney Hunt HY-Q Sluice Gate (Fig. 2) gives complete drainage because there is no need for the vertical sill. Further, the cost of installing and maintaining auxiliary equipment is eliminated.

HY-Q® Sluice Gates Assure Complete Drainage

FIG. 2

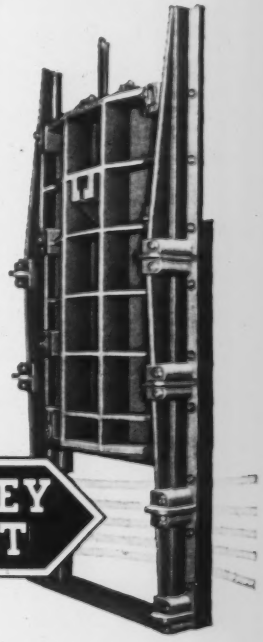




HY-Q The sluice gate with flush-bottom closure

The many advantages of the Rodney Hunt HY-Q Sluice Gate derive from the design of the resilient seal fastened to the bottom of the disc as illustrated at the left. This seal extends the full width of the disc and provides a cushioned closing at the stop bar *flush with the invert.* This flush-bottom closure assures—**1.** maximum flow — **2.** complete drainage without pumps or piping—**3.** elimination of silt and debris problems—**4.** maximum hydraulic gradient—**5.** lowest possible invert—and—**6.** construction economy.

In brief, the HY-Q gate offers unmatched design flexibility and construction economy for water control projects...with hundreds of gate sizes available from 6″ x 6″ to 144″ x 144″ and larger to meet your specific design requirements.



HY-Q SLUICE GATE
a product of
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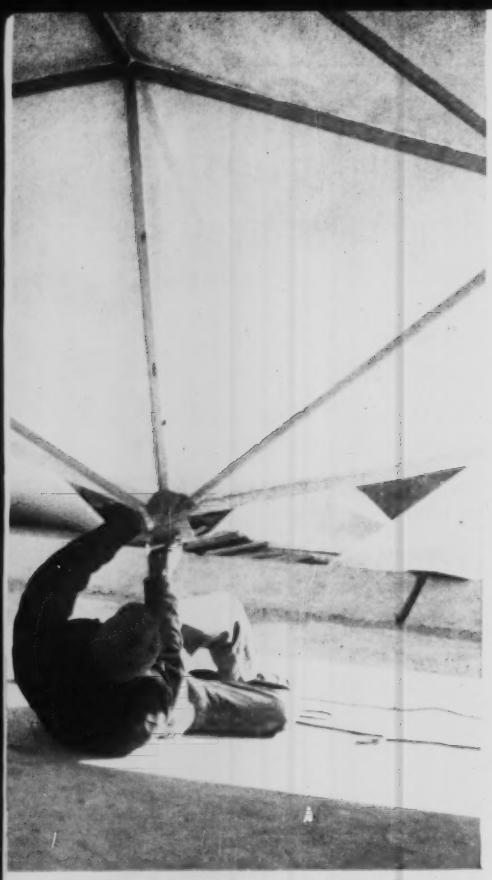
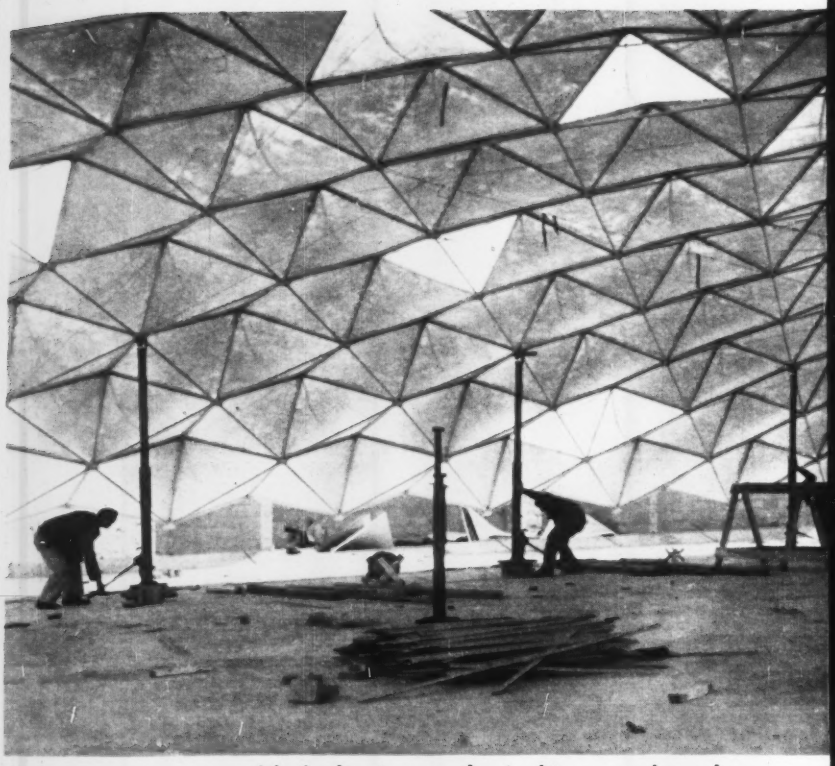
Water Control Equipment Division
85 Water Street, Orange, Mass.
Serving water control engineers with equipment and engineering

RODNEY HUNT



Working at ground level . . .



five-man crew assembled plastic panels, jacking up the edge

Five Men Do a Big Building Job

Four workmen and a foreman erected this low-cost building without scaffolding or cranes. Once the slab on ground was laid, they moved in with 617 plastic panels, bundles of light steel struts, wire, pins and screws and mechanical jacks.

When they were through, Structural Plastics, Inc., of Fort Worth had a plastic panel, arch-truss building for producing more plastic panels for more arch-truss buildings.

The five men erected the building by assembling a row of 4-ft-module panels along one edge of the floor slab and building successive rows of panels out across the floor. Struts above and below the panels stiffened the arch and gave it its shape. As the structure grew, jacks held the working edge off the floor while temporary cables tied the arch ends together.

The panels, called Plasta-Shades, are patented hyperbolic paraboloids of glass-fiber-reinforced plastic. Locked together they form shallow pyramids, each saddle-shaped panel dips from one peak to a valley and up to the next peak.

Panel edges fold over, making a flange on the interior side. This way, adjacent panels are clamped together with a folded aluminum strip along the entire flange. A worker crimps the strip with lock-pliers to hold the panels, then locks the panels together with four screws through both flanges and both sides of the folded aluminum strip.

A sheet metal cross goes in every intersection where four panel corners form a peak. This cross holds a square metal plate over the joint; tubular struts pinned from plate to plate form the building's stiffening frame.

Outside, the crew caulked panel joints with a compound to weatherproof the structure. The company spent a lot of time developing proper panel joint seals. Production model buildings will have impregnated felt seals at the panel edges to insure tight joints.

The arch spans 78 ft across the combination concrete foundation and floor. Center height inside is 26 ft. The company tested a mockup of the arch to an equivalent of 20 psf live load.

Panels in the new plant are mostly opaque white, with translucent yellow and blue sections for light transmission. This job included only six different panel shapes and three strut sizes.

The company makes two basic panel shapes: one with two adjacent sides perpendicular, the other with no two sides perpendicular and no sides parallel.

The buildings should only cost $3.50 per sq ft and go up in about 15 days, says William B. Orr, president of Structural Plastics. S-P put up the first building themselves. Mr. Orr, who designed the experimental building, says it cost about $37,000—only $4.80 per sq ft.

Costs should drop as workers become more familiar with the system. The company spent nearly 60 days on the first building; every time they hit a construction problem, they stopped to work out a solution aimed at fast construction in the production models. During the process, winds got up to 70 mph twice, but the partially finished superstructure withstood the loads without trouble.

The company plans to furnish on-the-job supervision for contractors, and to code the building units and provide a part-code plan of the buildings when production gets started. Mr. Orr says they have tentative orders for four buildings already.

as building grew.

The whole building-arch pivots on the left; jacks are on the right.

Finished, it's a 7,800-sq ft plastic building. What for? Making parts for plastic buildings.

How to estimate ground-water discharge

of Beth-Cu-Loy subsurface drainage pipe

Use simple formula, or nomograph on opposite page

You can easily minimize ground water dangers by the proper use of subsurface drainage structures made from galvanized corrugated Beth-Cu-Loy sheets. Pipe for this purpose is perforated to permit excess ground water to trickle in and run off to a predetermined point of deposit. But—since the size of your subsurface pipe depends on the amount of ground water to be handled—how do you estimate the potential runoff?

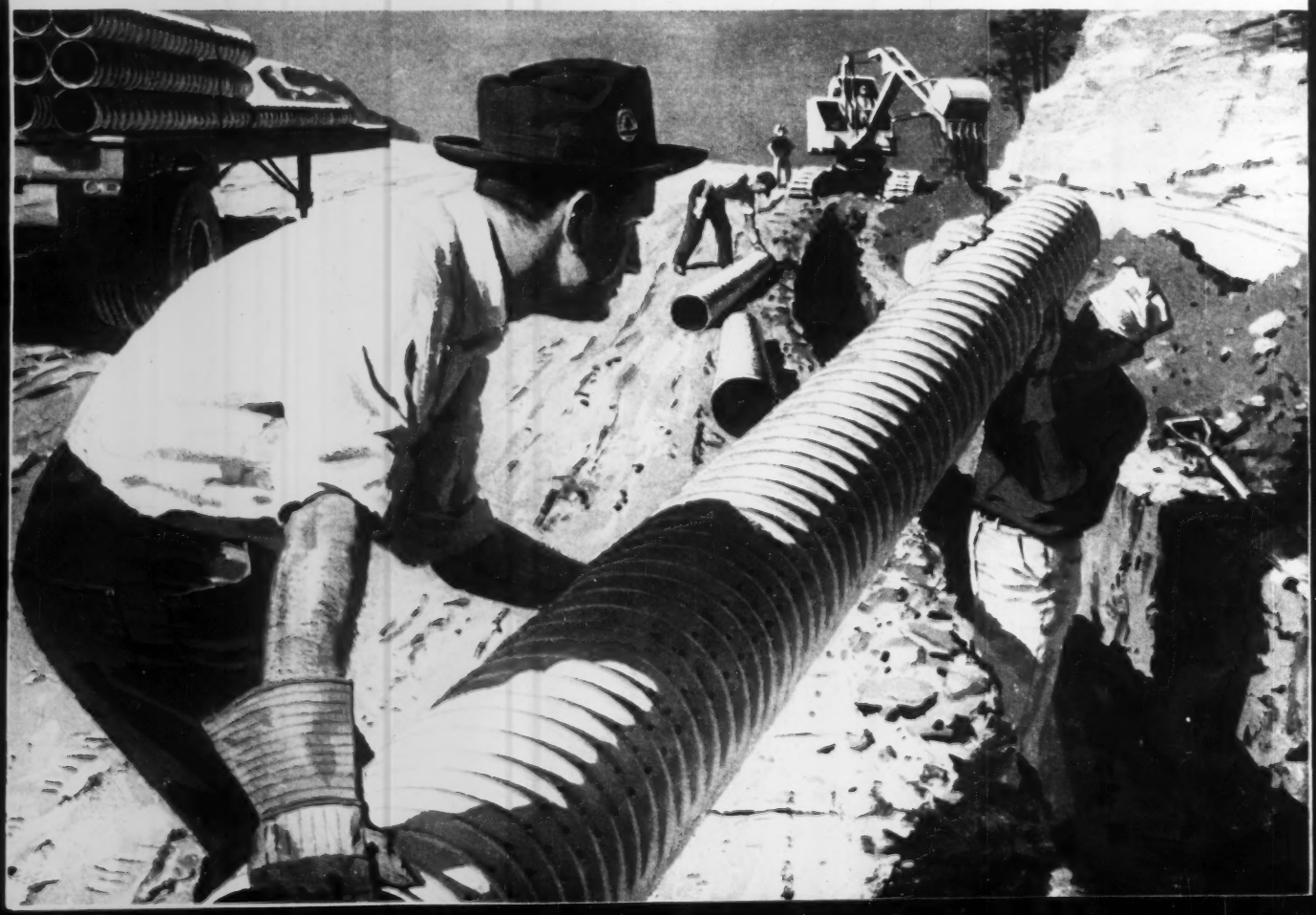
In plotting ground-water discharge under a variety of subsurface conditions, many engineers have been using the simple formula shown at the right.

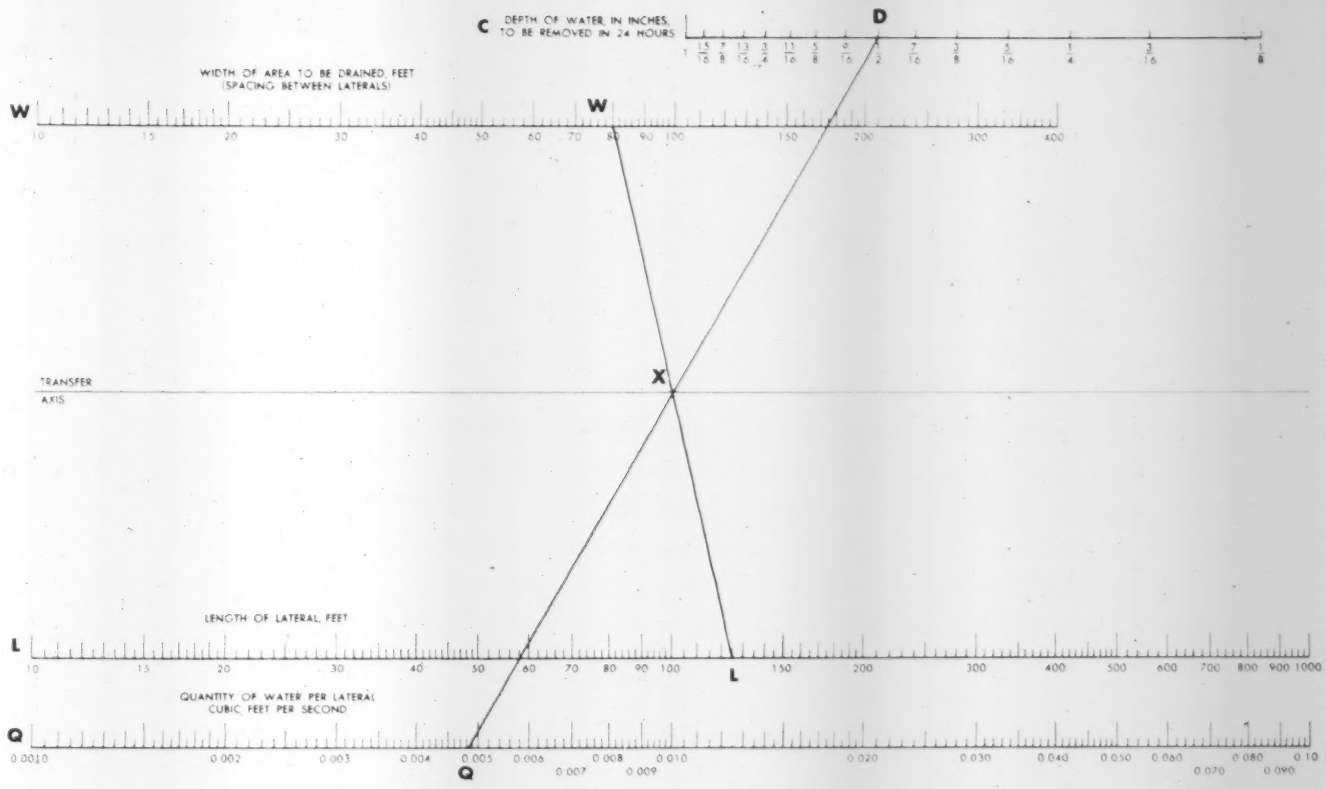
$$Q = \frac{C \times L \times W}{43{,}560}$$

where

- Q = quantity of water in cu ft per sec for each perforated pipe
- L = length of perforated pipe in feet
- W = width of area to be subdrained*
- C = a constant representing depth of ground water (in.) to be subdrained in 24 hrs (refer to table on opposite page for value of "C" to obtain cu ft per sec per acre. Your soils man can help in analyzing soil permeability and estimating the depth of water to be removed).

*One pipe only, not a network of drains.





How To Use This Nomograph

TABLE—CONSTANT C *(Subsurface Runoff in 24 Hours)*

Soil Permeability + Type	Depth (in.)		Quantity of Water Per Lateral (cubic feet per second per acre)
	Fraction	Decimal	Constant C
Slow to Moderate	1/16	0.0625	0.0026
"	1/8	0.1250	0.0052
"	3/16	0.1875	0.0079
"	1/4	0.2500	0.0105
Moderate	5/16	0.3125	0.0131
"	3/8	0.3750	0.0157
"	7/16	0.4375	0.0184
"	1/2	0.5000	0.0210
"	9/16	0.5625	0.0236
Moderate to Fast	5/8	0.6250	0.0262
"	11/16	0.6875	0.0289
"	3/4	0.7500	0.0315
"	13/16	0.8125	0.0341
"	7/8	0.8750	0.0367
"	15/16	0.9375	0.0394
"	1	1.0000	0.0420

If you prefer to avoid arithmetical calculations, you'll find the nomograph a time-saver. Let's follow an example to see how the graph works out. Assuming an area-width (W) of 80 ft, and the length of the pipe lateral (L) to be 125 ft, draw a straight line (WL) between these points through the transfer axis line, thus establishing point X.

Let us further assume that your local soils technician has estimated that 1/2 in. of water is the depth to be drained in any 24-hr period. Draw another straight line from the "1/2" figure at point D, down through X, and extend it to the quantity line at Q. The reading at point Q shows that 0.0048 cu ft per sec of water can be expected through the lateral pipe.

Your Fabricator Can Help at This Point

With this information, your pipe fabricator can help you determine the size of pipe needed to handle the flow.

Pipe made from Beth-Cu-Loy galvanized corrugated steel sheets is ideal for subdrainage applications. It's strong, light in weight, long-lasting, and economical. Flexible, too. In all respects, it meets the rigid specs of the American Association of State Highway Officials.

Bethlehem makes only the Beth-Cu-Loy (copper bearing steel) sheets, not the pipe itself. Consult your fabricator for details on this versatile material.

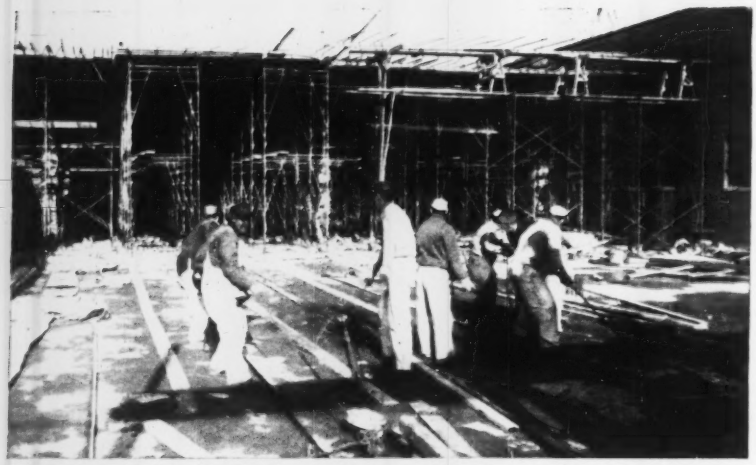
BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

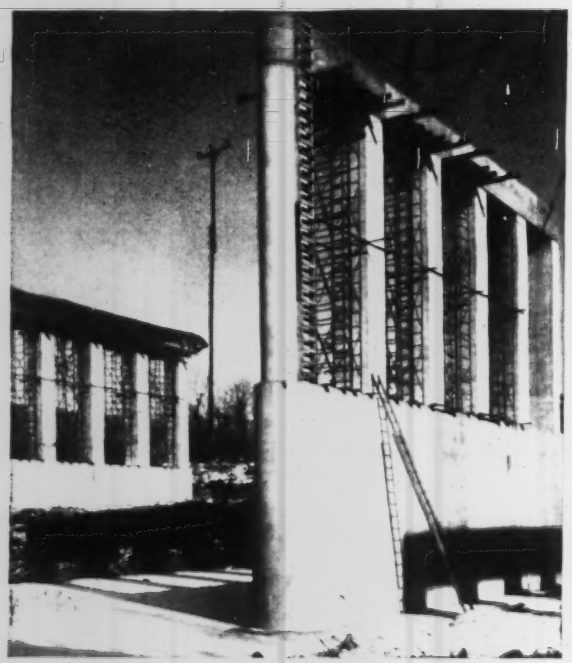
BETHLEHEM STEEL

Shoring Methods...

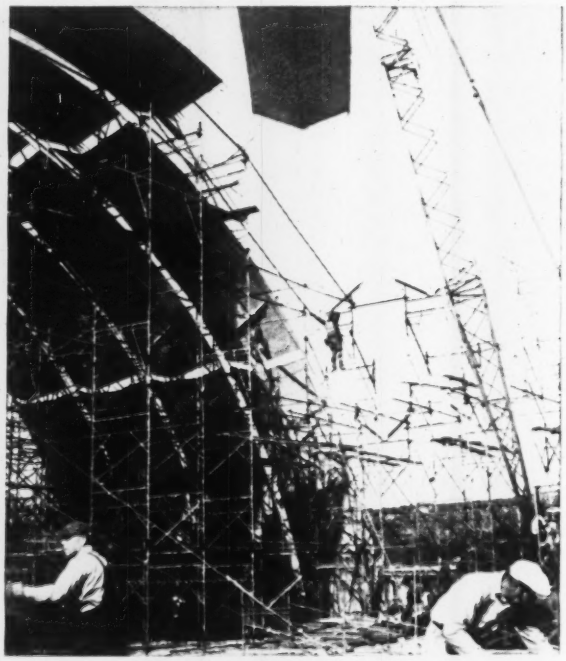
A Picture Report on Efficient Ways to Shore Concrete . . . by Patent Scaffolding Co.



FAST METHOD MOVES SHORING WITH FORMS—Soaped sills, placed under shoring legs, provide fast movement of 960 sq. ft. sections of "Trouble Saver" Shoring with formwork, to succeeding drophead panels on this slab job at Kentile, Inc., So. Plainfield, N.J. Method uses only half the shoring (462 frames) and formwork usually required, and saves the contractor, Fred J. Brotherton, Inc., considerable time, equipment and costs. Each section is moved, as shown, to its new location in just 15 minutes.



EASY-TO-ERECT PIER SHORING—"Trouble Saver"® Steel Shoring, made with 3'-wide ladder frames, provides ample support for beams on several pier capitols on this bridge in Palmyra Township, Pa. Frames, spaced 3' apart, shore capitols 3'6"-wide by 4'-thick. Built-in ladders give workers quick access for forming and stripping. Willis, Paul & Proctor, general contractor. P.S. Co. offers engineering layouts specifically detailed for every job.



CORRUGATED BARREL ROOF SUPPORT—Support for this unusual corrugated, reinforced concrete roof is provided by "Trouble Saver" Shoring towers with 104 special V-shaped cradle frames. These units, designed by P.S. Co., were set on top of the shoring frames to conform to roof segments, which measure 10'-3½" wide and 2'-9" deep in cross section. Holy Trinity H. S., Trinidad, Colo. Platt-Rogers Constr. Co., gen. contr.

50 YEARS OF SERVICE

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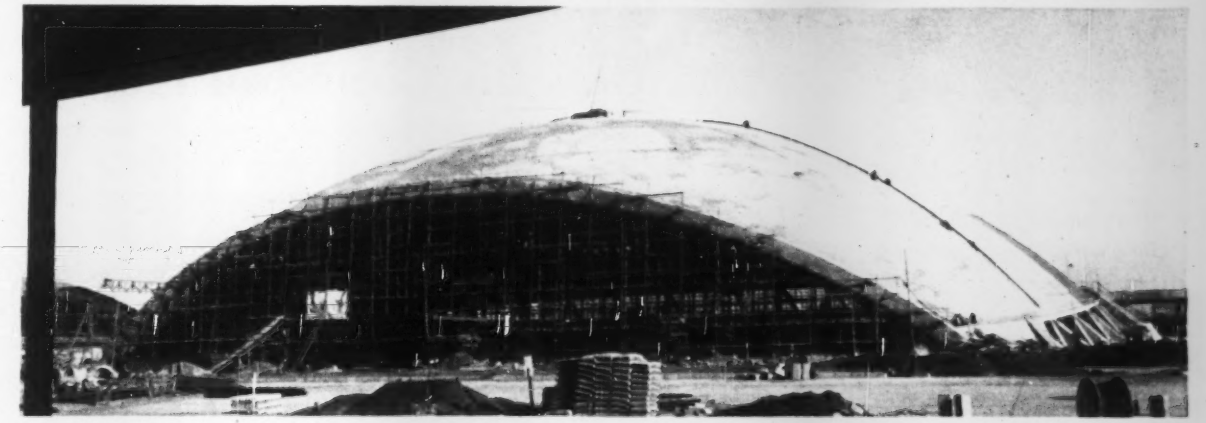
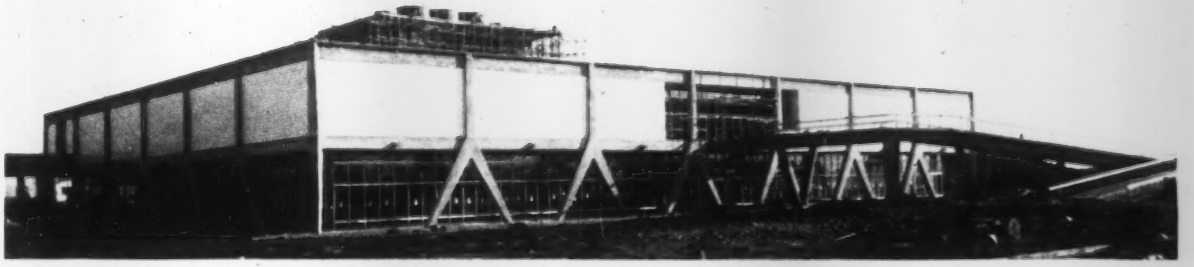
Machinery building looks light and open, but takes floor loads up to 930 lb per sq ft.



Main hall spans 1,122 ft. Men on the dome are finishing Durisol covering applied over steel frame.



Third building contains 26,400 sq ft of space. Ramps cut down traffic through first floor exhibit area.

Tokyo Fair Gets Permanent Home

The Tokyo Trade Center, tired of pulling down $1 million worth of temporary buildings each year, has built three permanent exhibition halls for Tokyo's International Trade Fair. At a cost of $4 million, they'll provide 47,000 sq ft of exhibition space.

More than 1,000 Japanese manufacturers and 23 foreign countries have booked all available space for this year's fair, which opened this week.

Designed by Japanese architect Masachika Murata & Associates, the three halls were built in just eight months; different contractors worked on each building.

With an eye on conventions as well as fairs, the Japanese architects designed the main, domed building for easy conversion into a 15,000-seat auditorium.

(*International* continued p. 54)

Rosboro Timber Fabrication

Rosboro owns and logs its own timber from a sustained yield of old growth Douglas Fir. This assures a dependable and uniform quality for all types of structures.

Rosboro's fabrication crew has almost two decades of experience in engineered timber fabrication. The department is a unit of our mill at Springfield, Oregon, taking advantage of a large inventory, storage and shipping facilities. Rosboro can fabricate all types of solid sawn trusses and roof structures to meet your needs for modern engineering in wood.

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LUMBER COMPANY
SPRINGFIELD, OREGON

Please send me your Timber Fabrication folder

Name

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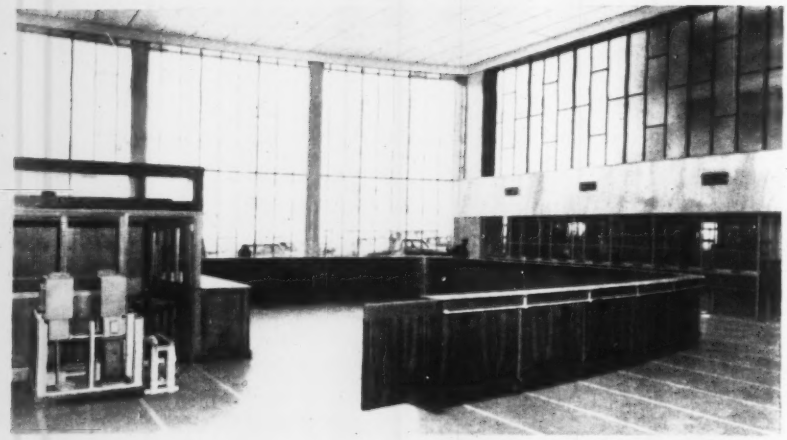
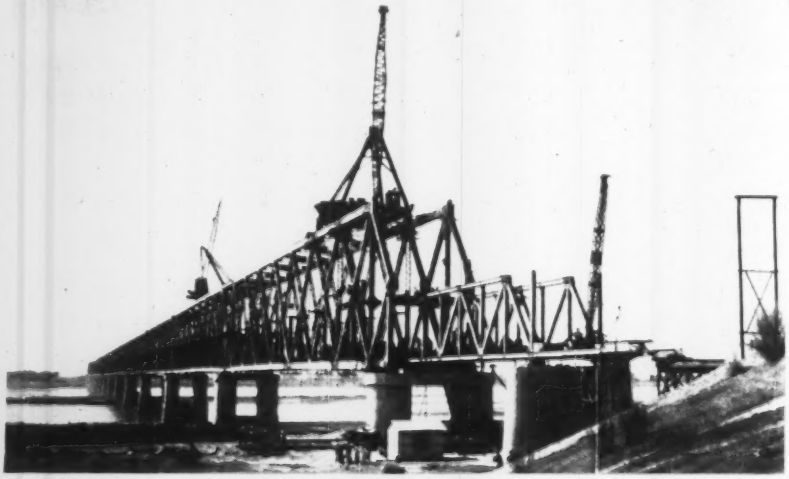


Bank Gets Big Clearspan Floor

Focal point of the new United Building Society headquarters in Johannesburg, South Africa, is a king size banking floor, 70x120 ft.

The bank is in an independent unit between two wings of the society's 9-story home. The main structure is steel-framed, with sandstone and granite exterior walls. The bank-floor section is sheathed in glass and bronze.

A luminous ceiling, 25 ft above the floor, forms the soffit of an 8-ft insulating air plenum. The bank-floor section is framed in concrete, with prestressed girders for the 70-ft span from front to rear of the hall.



Seven thousand Indians worked for three years to build . . .

A Bridge Across the Ganges

A $33.6-million, 6,000-ft double-deck truss bridge across the restless Ganges River in eastern India is almost completed.

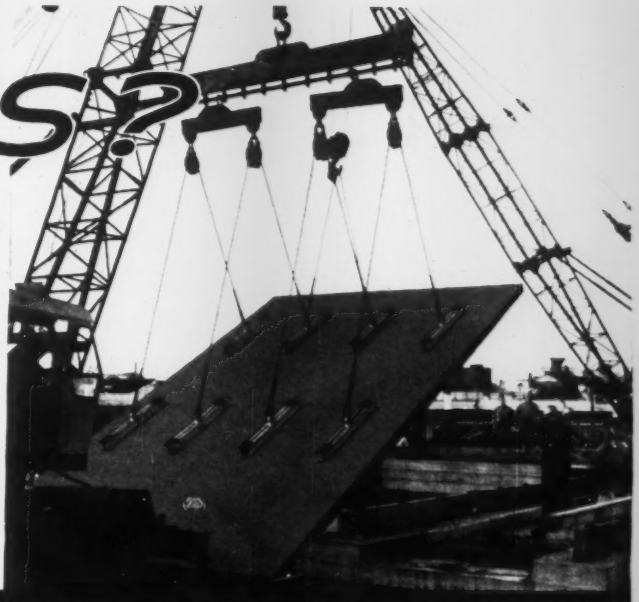
Designers of the bridge faced problems seldom encountered in the U.S. During the monsoon season heavy rains bring the river to flood stage for as long as 40 days. In the region of the bridge site the river has a discharge of as much as 2.5 million cfs during flood periods. Foundations had to go down to 160 ft below water level for protection from scour. Strong monsoon winds were another factor that had to be considered.

In the dry season, the Ganges, one of three Indian rivers sacred to Hindus, cuts new channels. Because the construction site is in an earthquake belt,

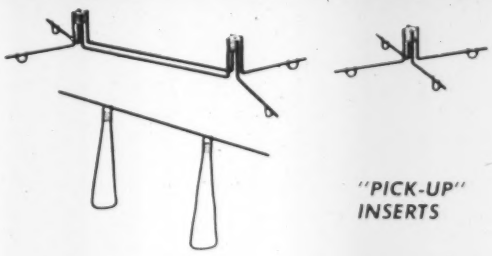
PLANNING TILT-UPS?

From original layouts to final positioning...

SUPERIOR

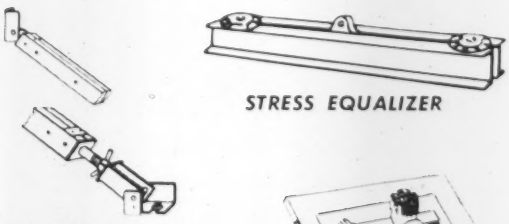


HAS THE ACCESSORIES AND THE SYSTEM



"PICK-UP" INSERTS

ANCHORS FOR BRACES



STRESS EQUALIZER

ADJUSTABLE BRACE

PLANNING AND LAYOUT SERVICE

Tilt-Up jobs can be accomplished faster and with greater efficiency by using SUPERIOR Accessories (shown at left). In addition to Accessories which have been used and proven on thousands of conventional as well as unusual projects in this field, SUPERIOR also provides the *system* for the entire job, from original planning and layouts, to the final positioning of the precast panels with Superior Adjustable Braces.

As the pioneer in this field, Superior has recently developed a special Stress Equalizer for reducing lifting stress in tilt-up panels of over 20 ft. high. It offers two advantages: (1) Less concrete reinforcing steel is required for stresses which occur at time of lift; (2) Permits use of simplified crane rigging.

On your next tilt-up job, avoid expensive crane delays, be assured of safety, and reduce overall costs! Specify the SUPERIOR System.

For details request a copy of Bulletin TU-3.

(Shown above) 67,000 LB. PRECAST PANEL being positioned. 19' 6" wide by 35' high by 8" thick. Swinerton & Walberg of San Francisco is the contractor.

SUPERIOR Concrete Accessories, Inc., 9301 King St., Franklin Park, Ill. (A Suburb of Chicago)

NEW YORK OFFICE
1775 Broadway, N.Y. 19, N.Y.

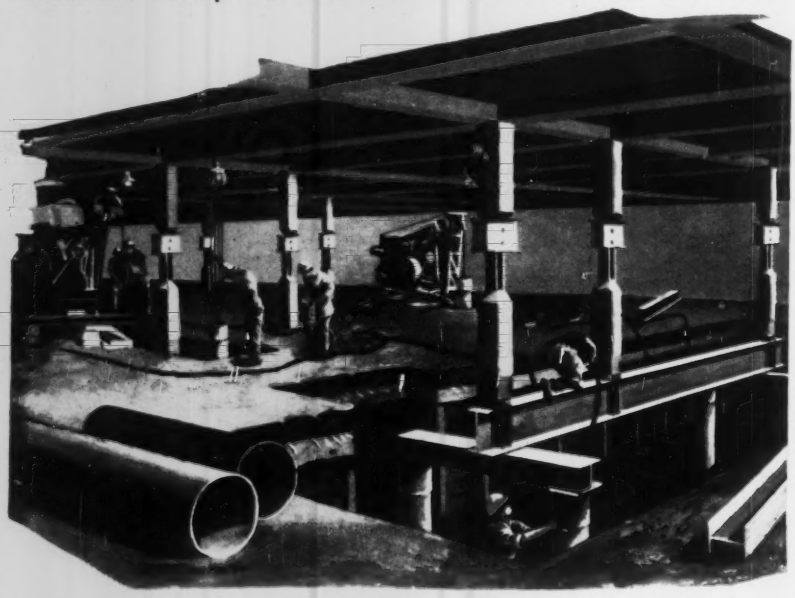
HOUSTON OFFICE
4101 San Jacinto, Houston 4, Tex.

PACIFIC COAST PLANT
2100 Williams St., San Leandro, Calif.

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS

UNDERPINNING OF PIER POSES MANY CONSTRUCTION PROBLEMS

Timber and rip-rap obstructions—vibration problem—limited headroom—complicate installation of 14-inch Drilled-In Caissons



Project: Underpinning Pier 3, Hudson River, for United Fruit Co.
Owner: Department of Marine & Aviation, City of New York
Engineers: Dept. of Marine & Aviation, Captain L. H. Rabbage, Chief Engineer
United Fruit Co., H. C. Ames, Division Engineer
Consultant: Moran, Proctor, Mueser & Rutledge

Underpinning was required for Pier 3 on New York City's Hudson River. Sketched above is a portion of the new support system, which consists of 14-inch steel pipe piles socketed into bedrock.

To install this underpinning with minimum vibration and to carry the piles through rip-rap, timber cribs and hardpan, specialized drilling procedures were used, the design of the drill rigs being modified to operate in the very limited headroom available.

When you encounter foundation problems, Spencer, White & Prentis is long-practiced in prescribing sound solutions.

CATALOG ON REQUEST

Spencer, White & Prentis INC.

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the bridge must be able to withstand seismic shocks.

More than 7,000 men have been working for the past three years on the bridge (ENR July 5, 1956, p. 124). It is claimed to be the only major project in India that has no foreign specialists on the payroll.

The bridge is being built at Mokameh, 45 miles east of Patna, capital of Bihar State. The high banks are 12,800 ft apart at this point.

The south bank, along which the main channel flows, is firm, hard clay that resists the current even during floods. The north bank is more pliable. It will be protected by an 8,200-ft guide and approach bank. In addition to guiding the river under the bridge, this structure will also carry the road and rail approaches from the north.

Main trusses of the bridge are 60 ft deep. Each span will have 16 panels measuring 24 ft 9 in. Some 14,000 tons of high tensile steel will be used for the trusses.

Seaway Contractor Claims To Be Settled by Canada

The St. Lawrence Seaway Authority of Canada hopes to settle within the next two months 22 claims for an extra $25.7 million on construction contracts. It is not expected that anything like this amount will be paid.

So far, the authority has settled six claims, agreeing to pay $768,000 extra and rejecting contractors' requests for another $7,868,000.

Transport Minister George Hees has said total claims on 28 projects amounting to an extra $36.2 million have been received to date on the big Seaway project, now estimated to have cost Canada $329 million.

Experimental Nuclear Plant To Be Built in Britain

An experimental nuclear power plant will be built in Britain as a joint venture by 12 European countries. The plant will be similar to an ultra-high temperature, gas-cooled plant designed for the Philadelphia Electric Co. in this country.

Countries joining in the project, besides the United Kingdom, are Austria, Belgium, Denmark, France, Italy, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, West Germany.

The United States will receive information on the operation of the project and may contribute to the cost of construction. Work is scheduled to begin on the site in 1960; completion is expected two years later.

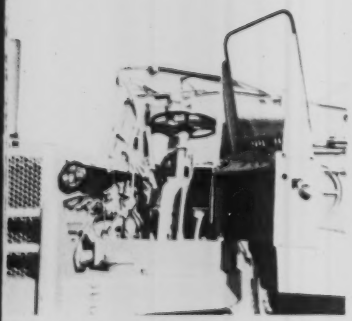
CATERPILLAR'S
PROJECT
PAYDIRT

PROJECT PAYDIRT *pays off again*

NEW CAT NO. 619 TWO-WHEEL TRACTOR

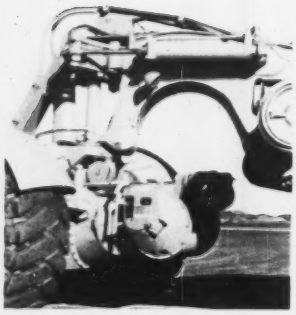
PROJECT PAYDIRT: Caterpillar's multimillion-dollar research program—to meet the continuing challenge of the greatest construction era in history with the most productive earthmoving machines ever developed.

NEW 225 HP CAT NO. 619 TRACTOR

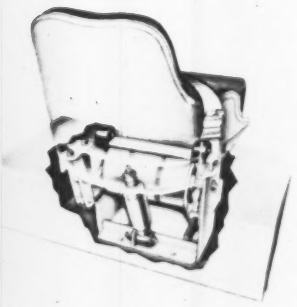


New Swing-away Dash. Permits timesaving access to the starting engine, air compressor and hydraulic pump. Entire left side of engine can be exposed without having to disassemble any major components connected with dash.

New Turbocharged Cat Engine. Meets the specific requirements of the No. 619. Develops 225 HP and a full 20% torque rise for fast acceleration on cut or haul road. Fuel system permits use of economy-type fuels.



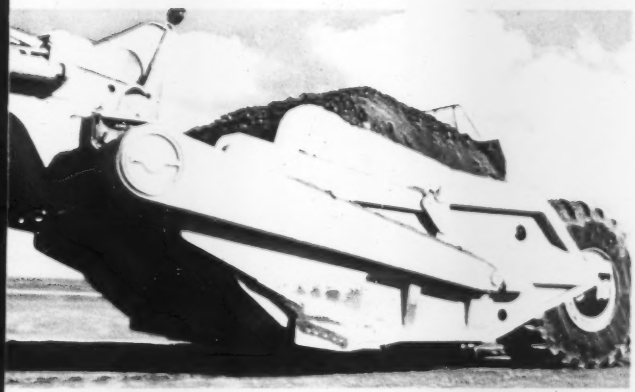
Fast Servicing. Unit construction offers unmatched accessibility to the transmission, differential and cable control. They can be quickly removed from tractor for servicing. Each axle can be pulled out by removing only 6 capscrews.



New Torsionflex Seat. New seat provides "highway" ride on off-highway conditions. Helps conserve operator's energy, lessens his fatigue, enables him to do more work per shift. The seat is standard on the new No. 619.

AND 14 CU. YD. NO. 442 SCRAPER

SPEED PLUS BALANCE: With top speed of 30.2 MPH, the No. 619 has the stability to sprint even in tough going.



New No. 442 Series B LOWBOWL Scraper. Matched to the No. 619 for high production and fast loading. Capacity ratings: 14 cu. yd. struck and 18 cu. yd. heaped. Also available is the 25 ton capacity Athey PR619 Rear Dump Trailer.

First two-wheel tractor to deliver four-wheel speed and roadability!

Matched with new No. 442 Series B LOWBOWL Scraper for new high production . . . 14 cu. yd. struck, 18 cu. yd. heaped!

The new No. 619 Series B represents a major breakthrough in two-wheel tractor-scraper design. It combines two-wheel traction with four-wheel speed and roadability for high productivity on a wide range of applications. And that's not all. It affords new type unit construction and timesaving accessibility never before built into this type of machine.

The No. 619 has a new Turbocharged engine that delivers 225 HP. This rugged engine develops a torque rise of 20% — for fast acceleration. It provides a top speed of 30.2 MPH. The No. 619 can really get out of the cut and run — and run under conditions that slow down other make two-wheel rigs.

That's because of its roadability. Advance Caterpillar design has achieved a tractor-scraper balance resulting in rides that "smooth out" to an amazing degree. This balance permits higher speeds for more cycles per hour. It also lessens operator fatigue for more cycles per day.

With all this, new 2-jack hydraulic steering makes the No. 619 extremely easy to maneuver, yet retains that important "feel of the road" touch. Design permits full 90° turns and a turning diameter of 30 feet.

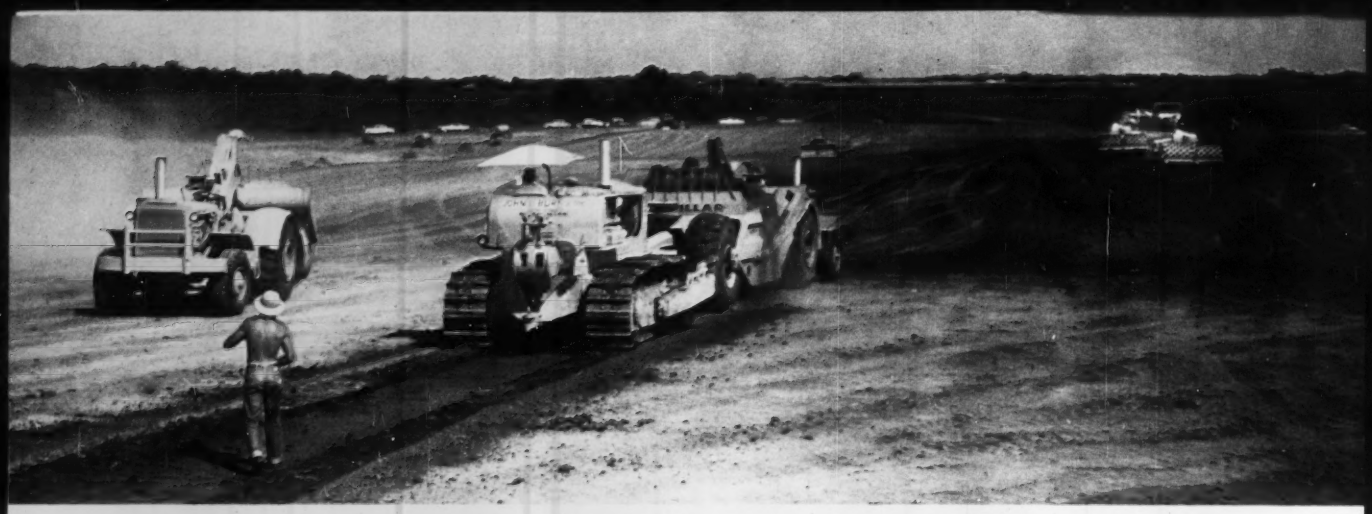
As for accessibility, here's one example: A new swing-away dash allows ready access to the starting engine, air compressor and hydraulic pump with a minimum of time and effort. Another example: By removing six capscrews in the planet carrier cover, each axle can be removed from the tractor. The planetaries are interchangeable between sides.

Like all achievements of Caterpillar's Project Paydirt, the No. 619-No. 442 unit has been thoroughly job tested. Four years of in-the-field operation prove this: on every count — production, accessibility, economy — this new rig outperforms other make machines.

How much does this mean to you profit-wise? Of course, that depends on your jobs. But this is certain — there's nothing like the new No. 619 — No. 442 in the field today. Get the complete facts about it from your Caterpillar Dealer. Ask for a demonstration. See for yourself how it can step up production and profits on a wide range of applications.

Additional facts about the No. 619-No. 442

Six-speed forward, two-speed reverse constant mesh transmission • Standard wide-base 26.5 — 25, 24-ply tubeless tires all around — optional treads and ply ratings available • Choice of in-seat gasoline starting or direct electric starting • Fuel tank capacity — 85 U. S. gallons • Shipping width — 10' 10".



YOU NAME IT...CATERPILLAR HAS THE RIGHT MACHINE IN THE WORLD'S MOST COMPLETE EARTHMOVING LINE!

No other manufacturer offers the complete earthmoving line-up that Caterpillar does. No matter what type of machine you need, you'll find a Caterpillar unit to meet your specific requirement. What's more, each machine is a modern, heavy-duty unit, designed to do more work at lower cost with less down time than any in its class. That's because Caterpillar keeps every model up to the minute with design developments and improvements sparked by Project Paydirt.

The new No. 619-No. 112 is one of many examples of this leadership in action. Here's the line-up:

5 Track-type Tractors: Led by the "take-charge" D9 (320 HP), there's the new D8 (225 HP), D7 (140 HP), D6 (93 HP) and D4 (63 HP). All are flywheel ratings. Plus a complete selection of 'dozers (including the No. 7G Ball-dozer), rippers, tool bars and tool bar equipment.

3 Motor Graders: You have a complete selection in the big new 150 HP, 29,230 lb. No. 14; the 115 HP, 23,000 lb. No. 12, and the 75 HP, 20,805 lb. No. 112. Cat Motor Graders are known as "the standard of the industry." Optional on all three: the new transistorized Preco Automatic Blade Control, which maintains blade accuracy of ½" in 10'.

3 Traxcavators: The front-end loaders provide a range of capacities that meet every purpose: No. 977 (2¼ cu. yd. bucket); No. 955 (1¾ cu. yd.) and No. 933 (1¼ cu. yd.). All can be equipped with the exclusive Side-Dump Bucket, or other quick-change attachments—special buckets, teeth, bulldozers or forks.

4 Wheel-type Tractors: Besides the new No. 619, the two-wheeled DW21 (345 HP, max.), the four-wheeled DW20 (345 HP, max.) and DW15 (200 HP, max.) team with matching LOWBOWL Scrapers: the No. 470 (19.5 cu. yd. struck), No. 482 (24 cu. yd. struck), No. 456 (19.5 cu. yd. struck) and No. 428 (13 cu. yd. struck) respectively. Athey Trailers couple with Cat wheel-type Tractors for rear or bottom dumping.

Your Caterpillar Dealer backs you with prompt, on-the-job service around the clock. He's the man to see about the most productive earthmoving line in the field. Call him today!

Caterpillar Tractor Co., San Francisco, Calif.; Peoria, Ill., U.S.A.

CATERPILLAR

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DIESEL ENGINES • TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

BORN OF RESEARCH
PROVED IN THE FIELD

Seedbed in rainwashed ditch gets protective mat . . .

Result: thick cover of grass stops further washouts.

Jute Matting Goes to the Aid of Grass

Jute matting—the netting that's wrapped around baled cotton—is proving just the thing for getting a soil-holding grass cover on critical sections of highway ditches and banks. It's also used with success on steep slopes and stream banks.

Here's how to use it:

- Prepare the seedbed as usual, but don't pack the soil. Plant the seed or sprig the grass at the normal rate.
- Lay the jute over the part of the seedbed that rain or runoff is liable to wash out.
- Overseed the jute at half the normal rate.
- Roll or otherwise pack the jute.
- Don't use any mulch; the jute rots and adds organic matter to the soil.

Here's how to get best results:

- Keep the jute in close contact with the soil. At the top of the slope, tuck the end of the jute roll into a slot or trench 4 to 6 in. deep. Tamp the soil firmly back in place. If you need more than one roll of jute, tuck the upper end of each roll into the same kind of slot. Let 4 or 5 in. of the upper roll overlap the lower roll.
- Use enough width to keep water from sloshing over the sides. If you need more than one width, overlap the edge strands.
- Don't let water get under the jute. Peg the matting down with No. 8 wire made into staples 6 to 8 in. long. Pegs every 6 ft or so can also be used for the job.

Jute matting comes in rolls 75 yds long and 50 in. wide. A roll weighs about 90 lb. The standard weave is used on the most critical soil areas. A looser weave is available for less critical but still troublesome areas. Cost is around $15 or $16 a roll.

Edward M. Davis, U. S. Department of Agriculture Soil Conservation Service head for Maryland, conceived the jute matting idea.

Marshall Augustine, SCS plant materials field man, got the job of applying the idea. It has been tried with success in Maryland, New Jersey, Delaware and Virginia.

Bill Steiner, SCS man who supervised the jute tests, says the results are "nothing short of remarkable."

Reynolds Builds Plane Hangar of Aluminum

An aluminum airplane hangar is being fabricated at the Norfolk, Va., plant of the Globe Iron Construction Co. for Reynolds Metals.

M. L. Mesnick, general manager for Globe, said the hangar will be one third lighter than if built of steel. More than 70 tons of extruded aluminum shapes are going into the structural frame; 50 tons of aluminum will form the roof, siding and rolling doors of the building. The arch-type roof will be supported by 140 ft clearspan bowstring, riveted trusses.

The structure, measuring 100 x 140 ft, will be erected at Byrd Airport in Richmond, Va.

This plant used two ASBESTONE Curtain Walls

The *outer* walls of Jersey Central Power & Light's new Sayreville extension are built with rugged panels of Gold Bond Corrugated ASBESTONE "400". They give the building extra protection against fire, impact and salt air. *Underneath* the Corrugated "400", as a part of the curtain wall, are Gold Bond ASBESTONE Panels, which provide added insulation and a smooth interior wall.

Both products are ideal for use in the chemical, power or paper industries. They're immune to the effects of chemical fumes and moisture and are completely maintenance-free.

Ask your Gold Bond® representative for the full story about Corrugated "400" and ASBESTONE Panels. Or write Dept. EN-59 for free technical bulletins.

NATIONAL GYPSUM COMPANY
BUFFALO 13, NEW YORK

Gold Bond
BUILDING PRODUCTS

a step ahead of tomorrow

Special $165,000 ditcher has major role in . . .

Mass-Producing Irrigation Canals

Faced with the job of replacing 135 miles of worn out canals and ditches in its irrigation system, Cameron County Water Control and Improvement District No. 1 in the Lower Rio Grande Valley in Texas did two things:

- It obtained a 35-year, interest-free government loan of $4.6 million from funds provided under the Small Reclamation Projects Act (Public Law 984, 84th Congress).
- It drew up specifications and purchased a special $165,000 ditching machine, big enough and powerful enough to excavate trapezoidal canals up to 22 ft wide while pulling a canal lining form behind it.

This huge machine went to work this past winter on a canal 12 ft wide at the top, 2.5 ft wide at the bottom, and 3.25 ft deep, which it has excavated at an average rate of 5 ft a minute, but reaching a 9-ft-a-minute rate on occasions. Lining the canal with 2½ in. of concrete has proceeded at the same rate as the excavation.

The Cameron County system has provided water for 40,000 acres of cotton, citrus groves and truck produce for the past 50 years. Although still serviceable, the system's unlined canals were costly to maintain, and seepage losses were quite high. Also, most of the main canals would operate more efficiently if elevated above their original location.

These were the factors that governed the rehabilitation program. The procedure, therefore, for canals carrying from 18 to 26 cu ft per sec, is to raise the canal embankment, compact it, excavate the trench and line it. For flows below 18 cfs and down to 15 cfs, the same preliminaries will be followed, but 30-in.-dia concrete pipe will be used.

The unusual feature of the project is the use of large-size, machine-dug trapezoidal ditches. Trenching machines had been used for small ditches of this type in Florida and Louisiana as long ago as the mid 1920's, and somewhat larger ones have been dug since in Arizona. Those, however, were the only precedents, and since Buckeye wheel trenchers equipped with outrigger cutters had been used for most of this work, M. E. Martin, engineer manager of the Cameron County district, submitted his requirements for a large machine to the Buckeye manufacturer, Gar Wood Industries, Inc., of Wayne, Mich.

It was by taking its largest wheel type trencher, which could excavate a straight-wall ditch 5½ ft wide and 11 ft deep, and adding outrigger arms on each side equipped with rotary cutters, that the company produced the machine that Cameron County is using.

As delivered, the ditcher is equipped with 52-in. buckets on the wheel, although 65-in. buckets can be accommodated. Adjustment of the outrigger cutter arms up or down permits a choice of ditch side slopes.

The machine is powered by a 220-hp diesel engine and is equipped with torque converters and three-speed transmission. Power is transmitted to the main digging wheel, which in turn drives the side cutters.

Mounted on crawlers at the rear and rubber tires at the front, the huge machine weighs 55 tons, and is claimed to be capable of excavating 800 cu yd an hour of maximum size trench.

In operation, the machine can discharge spoil to either side or to both sides simultaneously. On the job these spoil banks are being placed so that they can be graded to form maintenance roads beside the canals.

(Turn the page)

KOH-I-NOOR

Precision-Matched Instruments

Koh-I-Noor offers draftsmen an important new concept—a comprehensive line of instruments and accessories meticulously matched to achieve a new high in professional performance.

ADAPTO-CLUTCH LEAD HOLDER and EJECTOMATIC LEAD DISPENSER

Two Koh-I-Noor products designed to work together for greater convenience. Lead holder's non-slip clutch takes all 17 degrees of Koh-I-Noor lead. Ejectomatic Dispenser feeds lead to holder without need to touch it.

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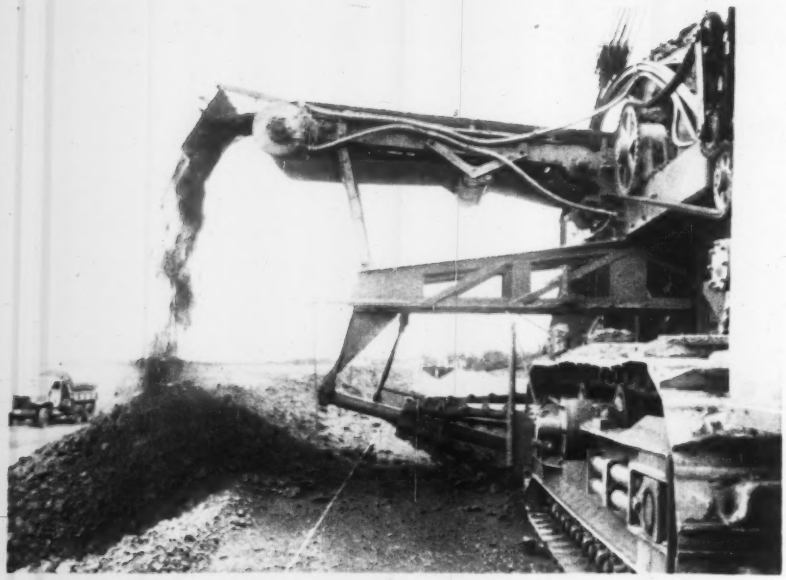
#0 EXTRA-FINE #2 MEDIUM

Write for descriptive literature.

by KOH-I-NOOR of course
Bloomsbury 3, New Jersey



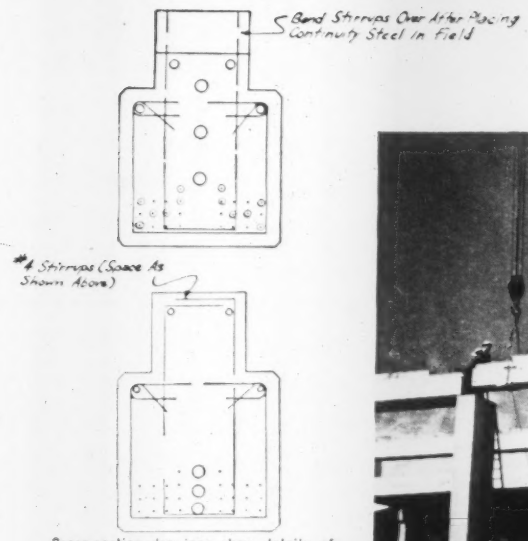
ROTARY CUTTERS on outriggers shape sides of the canal to the desired slope.

CONCRETING the canals is done with a slip-form pulled by a cable attached to the ditcher.

Lining the canals is accomplished with a steel slip form in the shape of a trapezoidal box, which is attached to the ditcher with a steel cable running off of a winch on the form. When the ditcher is running, it pulls the form behind it. In case the ditcher is stopped, it serves as an anchor so that the form can be pulled forward by the winch. When it is required to stop the form while the ditcher is moving ahead, the winch is put in reverse, permitting the cable to pay out. Also the practice is to keep the form about 500 ft behind the ditcher so that concreting need not be interrupted if the ditcher has to be stopped for any reason.

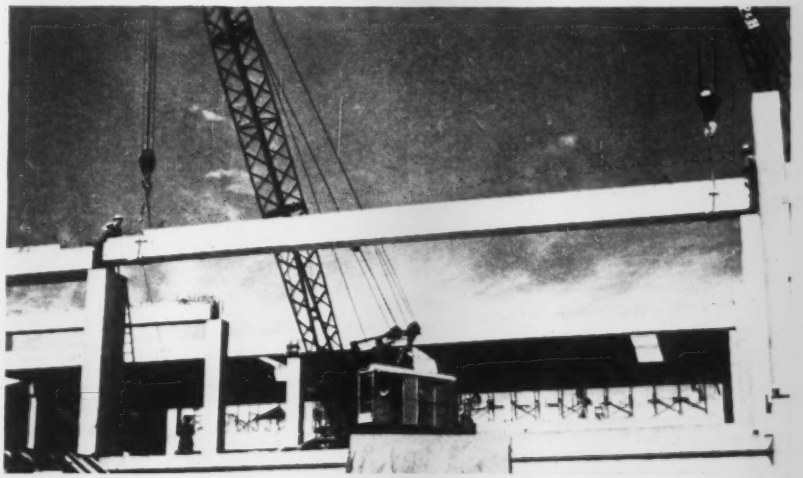
Concrete is brought to the job in ready-mix trucks and discharged into a bottom-dump bucket handled by a crawler crane. The bucket deposits the concrete in the form. As the form moves ahead, it strikes off the concrete to the 2½ in. thickness, while a steel apron on the rear smooths the surface. A workman riding on the apron does any necessary touching up. The apron is also loaded with sacks of sand to aid in compressing the freshly placed concrete.

(*New Products continued p. 66*)



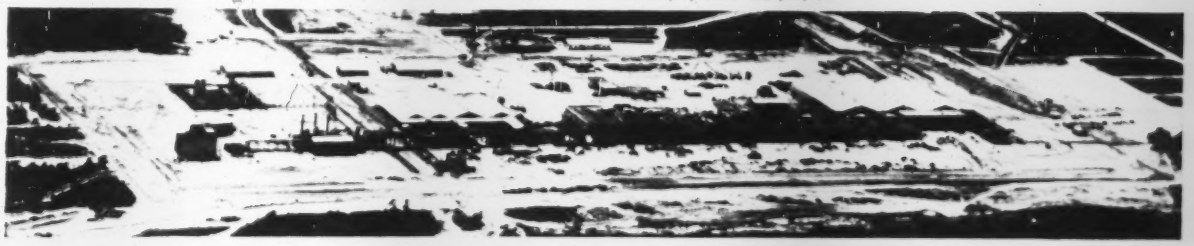
Cross-section drawings show details of typical 59-ft 8-in. inverted tee girder at one end and mid-span. The three Freyssinnet tendons, each with 18-0.196 in. dia. wires, were deflected to provide increased strength.

Prestressed concrete consultant: Ross H. Bryan, Consulting Engineer, Nashville, Tennessee.
Prestressed concrete manufacturer: Southern Prestressed Concrete Company, Inc., Pensacola, Florida.
General Contractor and prestressed concrete erector: J. A. Jones Construction Company, Charlotte, N. C.
Architect-Engineers: Lockwood Greene Engineers, Inc., New York, N. Y.



Here, prestressed concrete roof girder is lowered into place.

Aerial view of nearly completed plant. Entire facility covers an area of 1800 acres and will employ some 425 people.



Main manufacturing building of $25,000,000 American Cyanamid plant built of prestressed concrete

American Cyanamid Company's New Creslan* Acrylic Fiber plant near Milton, Florida, is one of the world's most modern fiber production facilities.

The main manufacturing building is constructed of prestressed concrete. At peak production, this plant will turn out 27,000,000 lbs of Creslan fiber annually. The raw material for this synthetic fiber will be supplied by Cyanamid's plant in New Orleans.

Southern Prestressed Concrete Company, Inc., Pensacola, Florida, manufacturers of all prestressed members for the plant, in describing the main manufacturing building, stated: "The column spacing was uniform throughout at 25 x 60 ft; column heights varied over a range of from 13 to 33 ft. Because of the location in a coastal area, the structure was designed for a wind load of 40 psf. The roof deck was designed for uniform dead and live loads, and also for a number of concentrated loads. Special girder designs were used for the larger concentrated loads; each girder being 24 inches wide with heights from 36 to 40 inches. To reduce vertical height, the girders were inverted tee in shape, with the roof members resting on the ledge thus formed. The roof deck members are 14 inches deep by 4-ft wide double tees. Also furnished were floor and roof panels for a corridor of about 1000 ft in length. The entire job required over 2000 precast, prestressed pieces and about 100 miles of Roebling prestressed wire and strand."

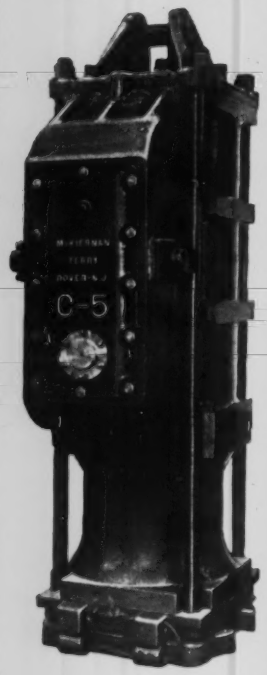
This structure is one of the newer and bigger examples of prestressed concrete's ever-growing acceptance throughout the United States. In addition, it bears out Roebling's conviction that prestressed concrete is fast becoming a mode of construction with benefits that can only be considered impressive. Roebling's role in the prestressed field goes back to the introduction of the method in the United States. We invite inquiries of any nature on the subject of prestressed concrete. An inquiry to Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey, will bring a prompt reply.

*Creslan, Reg. T. M.

ROEBLING

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation

NEW
"C" TYPE
DOUBLE-ACTING
PILE
HAMMER

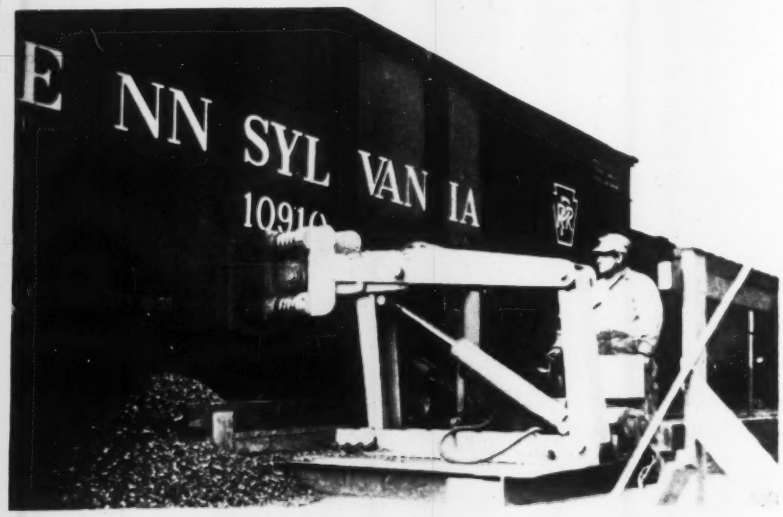


PATENTED

The C5 contains a 5000 lb. Ram which, powered by a 600 cu. ft. air compressor, delivers 16,000 ft.-lb. blows 110 times a minute. Master engineered for higher productivity, precision manufactured for matchless durability — accept less and the ultimate cost will be more!

McK T

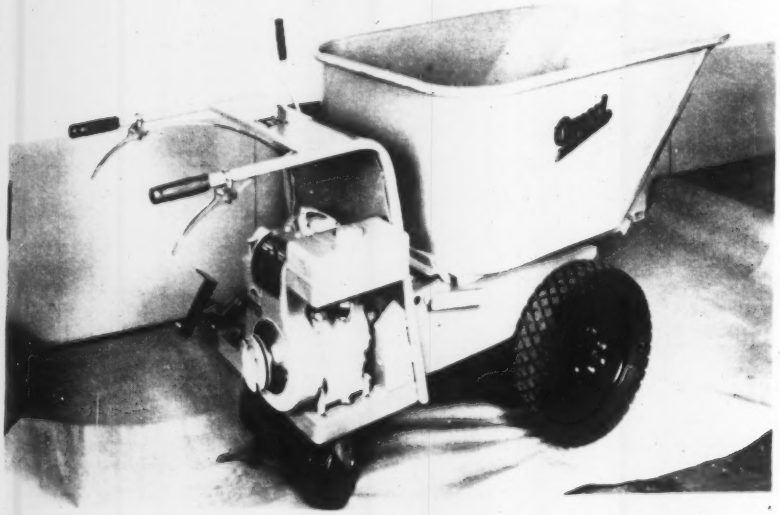
McKIERNAN-TERRY CORP.
80 RICHARDS AVE., DOVER, N. J.



Vibrator Unloads Railroad Car

A permanently mounted trackside vibrator is for fast unloading of hopper bottomed railroad cars. It is a one man operation.

The head of the "Vibrolator" is hydraulically placed against the side of the car. The belt-driven vibrator head is then switched on. Impact is transmitted through the car sill to the sloping hopper to keep the material moving. MARTIN ENGINEERING CO., NEPONSET, ILL.



Power Buggy Totes 1,500 Lb.

The PL-10 power buggy has a 10 cu ft capacity. It travels at speeds up to 5 mph up 20° slopes with a 1,500 lb load, the manufacturer claims.

The buggy weighs 560 lb. It is 31 in. wide, 37 in. high and 75 in. long.

Clutch and brake are controlled from one hand lever, throttle from another. Forward and reverse are controlled by foot pedal. Power is a 6-hp engine.

What pallet in place of the bucket is available. AUROR PIONEERS CO., INC., 17 WESLEY ST., SOUTH HACKENSACK, N. J.

New Products continued p. 68

Low-Slump Workability

This hyperbolic paraboloid, spanning 60 feet, is one of six for the new library of Hunter College, New York City.

...with PLASTIMENT

Architect:
MARCEL BREUER, FAIA
Consultant: Eduardo Catalano
Associate: Robert F. Gatje
Consulting Structural Engineers:
FELIX CANDELLA; FARKAS & BARRON
General Contractor:
LEON D. DeMATTEIS & SONS, INC.
Concrete Contractor:
DIC CONCRETE CORP.

The problem, to place lightweight Lelite concrete on steep slopes — as much as 45° — for the 3½ in. thick hyperbolic paraboloid roof of the new Hunter College library . . . Good workability at low slumps and a cohesive mix were vital . . . Plastiment retarding densifier, added to the mix, gave the desired workability at 2-inch slumps, and rapid clear-water bleeding for stability on steep slopes, resulting in sound concrete . . . Strengths of 3000 psi were obtained in 7 days.

Plastiment controls the hydration of cement by retarding and reducing cement gel formation . . . It does not entrain air so that proportions can be varied to meet job conditions . . . Workability is greatly increased so that even stiff mixes are readily compacted . . . In addition, it reduces cracking, increases strength and provides more uniformity in a concrete member.

Call Sika direct or nearest distributor for catalog and technical information and service.

Other Sika Admixtures:

Accelerating Densifier	Air Entraining Resin Solution	Expanding Grouting Aid	Integral for Cement Mortar

RELIABILITY • EXPERIENCE • SERVICE

SIKA CHEMICAL CORPORATION
PASSAIC · NEW JERSEY
COMPOUNDS FOR MASONRY and CONCRETE CONSTRUCTION

DISTRICT OFFICES: ATLANTA • BOSTON • CHICAGO • DALLAS • DETROIT • NEW ORLEANS • PHILADELPHIA
PITTSBURGH • SALT LAKE CITY — DEALERS IN PRINCIPAL CITIES — AFFILIATES AROUND THE WORLD

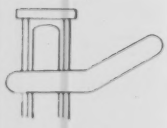
Cleveland "J" digs 20'/m through scored pavement

This Cleveland J-20, digging for 4 and 6-inch pipe on a Colorado utilities job, averaged 20 feet per minute as it cut through scored pavement and 8 inches of frost. Note the clean neat cut through paving and frost. Contractor's report indicates he was particularly pleased with the J-20's easy maneuverability as well as its high production on this job. *All* operations of the J-20 are controlled at the operator's seat.

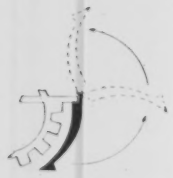
V Conveyor
...permits faster, higher spoil discharge, higher heaped loads without clogging.

Hydraulic Conveyor Shift
...permits digging past poles, trees, etc., without interrupting other operations.

Independent Hydraulic Drive
...controls conveyor speeds and direction of discharge.



Hydraulic Crumbing Shoe
...optional, extra... pivots upward... allows setting wheel to required depth at walks, drives, underground obstructions.



World's Finest Trencher Crawlers
...double flanged sprockets, wheels, rollers...drives on each end of 1½" diameter hardened pins...eliminates plugging...sealed ball and roller bearings...1,000-hour lubrication...a tremendously long-lived, easy-rolling track.

Get Bulletin L-104 on Cleveland "J" trenchers from your local distributor ...or write:

The CLEVELAND TRENCHER Co.

20100 ST. CLAIR AVE. • CLEVELAND 17, OHIO

Good Everywhere

Two-Speed 'Recipro-Saw' Cuts Work, Saves Blades

One saw with two speeds lets a worker do more work with one tool and saves both the machine and the blades, SKIL Corp. claims. Its new Recipro-Saw cuts metal with minimum blade wear on the lower speed setting, and permits fast cuts in wood, plastic, wallboard and other materials at high-speed.

SKIL president John F. Spaulding says savings in blade cost will quickly pay for the saw. A two-position blade shoe moves when the portion of blade in front of it is worn, exposing a new cutting section. SKIL Corporation, 5033 N. Elston Ave., Chicago, Ill.

Lower Cost Operation Cited for Two Diesels

Two new diesel engines, the 70-hp J-70 and the 80-hp J-80, are designed to bring diesel economy to equipment previously powered by gasoline engines, the manufacturer states. Some uses are: light trucks, tractors, pumps, cranes, compressors and generators.

The manufacturer cites fuel cost savings of up to 70 cents per hour over gasoline engines doing the same job.

Engines are four-cycle, naturally aspirated models. Cummins Engine Co., Inc., Columbus, Ind.

Two Engines Are Available For 3½ to 5½ Ton Tandem

The Model 560 is a 3½-to-5½ ton tandem roller that comes with either an air-cooled or water-cooled engine.

Hydraulic steering and split guide roll are designed for positive control and easy maneuverability. Duplicate controls allow the roller to be guided from either side for maximum visibility.

Water for the spray bars is regulated from the operator's seat. Essick Mfg. Co., 1950 Santa Fe Ave., Los Angeles 21, Calif.

Rugged Tractor Loader Fits Various Models

The Davis 99 is a tractor loader with a capacity of 2,000 lb at half height and 1,500 lb at full height. It fits the M-F Bull 202 and other make tractors.

The 99 has a 10-gpm pump with operating pressure of 2,150 psi. Lift arms have 2,500-lb breakaway power. Bucket has 10-ft 2-in. clearance and will reach 56 in. in front of the tractor.

Deluxe models come with down pressure, twin dump cylinders and attaching brackets for Davis backhoes. Massey Ferguson Industrial Div., 1000 S. West St., Wichita, Kan.

Pierce Island Bridge, Portsmouth, N. H.

NEW GRANCO *S-I-P* BRIDGE FORMS STAY IN PLACE

Look easy? It *is* easy. And practical, too. Permanent, galvanized S-I-P (*Stay-In-Place*) steel forms for concrete bridge floors. No wood forms to remove. No shoring. No special tools. No safety nets or scaffolds required. All the work is done from above. S-I-P Bridge Forms fit between stringers. The minute they are set in place, you have a solid working deck, ready for reinforcing steel and concrete. Think of the construction time you save. Granco S-I-P Bridge Forms are available now. Want more information? Just mail coupon.

VISIT GRANCO BOOTH No. 6, CIVIL ENGINEERING SHOW, NEW YORK CITY

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6506 N. Broadway, St. Louis 15, Mo.
***A Subsidiary of* GRANITE CITY STEEL CO.**
Distributors in Principal Cities

GRANCO

MAIL COUPON FOR BOOKLET

Contains product description, application data, job photos, installation illustrations.

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Firm _____

Address _____

City _____ State _____

Mail to Granco address shown at left.
Attention Dept. E

USS Tiger Brand—America's

—used on Niagara Power Project—

Niagara Falls is the greatest, single natural source of water power in North America. Soon it will be harnessed by the New York State Power Authority to produce 2,190,000 kilowatts of electricity. This is 216,000 more kilowatts than is generated at Grand Coulee Dam, the Free World's No. 1 manufacturer of hydroelectric power.

Water now tumbles over the falls at a rate of 200,000 cubic feet per second. To make use of some of this, two huge intake structures on the Niagara River above the falls will draw water into the power system. (See Map.) This water will pass through about 22,000 feet of twin, covered concrete conduits, feeding into a huge reservoir with a storage capacity of some 20 billion gallons. From the reservoir the water will flow by gravity to an 1840-foot-long power plant built at the base of a 314-foot rock cliff on the Niagara River, below the falls. Here, 13 huge turbine-generators will turn out 1,950,000 kilowatts of electricity. An additional source of power will be the smaller pump-generator station at the reservoir, generating up to 240,000 kilowatts. Shovels and bulldozers rigged with USS Tiger Brand Wire Rope are busy

No. 1 Wire Rope

biggest in the country

chewing away the rocky cliff to make room for the power house.

Why Tiger Brand is your best buy

1. It is made by a company that maintains the most complete wire rope research and manufacturing facilities in the country.
2. It is designed by one of the country's largest staffs of wire rope engineers. It is serviced by thoroughly experienced field representatives always ready with their assistance.
3. Every type of Tiger Brand Wire Rope is designed for specific applications. You get the *right* rope for the job.
4. It is made by one company, U. S. Steel, and every step of production, from ore to finished product, is carefully controlled and supervised to guarantee one high standard of quality.
5. Tiger Brand Wire Rope is manufactured by the largest single producer in the country.

For complete information, write to American Steel & Wire, Dept. 916, 614 Superior Avenue, N.W., Cleveland 13, Ohio.

USS and Tiger Brand are registered trademarks

American Steel & Wire
Division of
United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Alabama, Southern Distributors
United States Steel Export Company, Distributors Abroad

Main generating plant of the Niagara Falls Power Project, one of the world's largest, will produce 1,950,000 kilowatts of electricity.

Ripping rock—USS Tiger Brand Wire Rope is used throughout this shovel and on many of the other draglines, cranes and bulldozers digging the excavation for the main power plant.

Engineering Consultants:
Uhl, Hall and Richi—Boston

General Contractors:

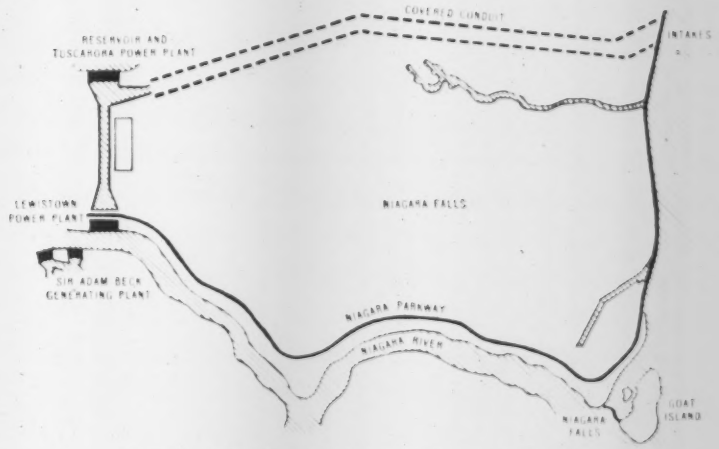
Merritt Chapman & Scott—
$98,288,448 Niagara Power Plant and
$65,642,254 Niagara River Intake Works,
plus 6600-foot section of the waterway.

Ball-Savin-Winkelman—
$37,366,805 Section II of the waterway.

Gull-Defelice—
$29,861,840 Section III of the waterway.

Tuscarora Contractors—
Combine of Arundel Corporation, Sponsor
L. E. Dixon Company
Hunkin-Conkey Construction Company
$39,814,292 Tuscarora Power Plant.

Channel Constructors—
Peter Kiewit, Sponsor
Penny Corporation
Morrison-Knudsen
Walsh Construction Company
$31,855,000 Section IV of the waterway,
plus Aggregate Plant.



Project map—showing how water will be conducted through closed conduits from intake above the falls to storage reservoir and then to the main power house below the falls. The two power plants will generate 2.19 million kilowatts of electricity—enough for the household needs of a city the size of Chicago.

Photo by Benrimo Studio

8" Transite Sewer Pipe being installed, Winchester, Mass.

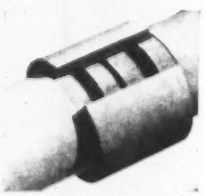
"Transite Sewer Pipe gives us the maintenance-free results we want...no root trouble, no infiltration, and no breakage in service."

...says James D. Halwarz
Superintendent of Water and Sewer Dept., Winchester, Mass.

"And because of its ease of handling and speed of installation, our final costs are less than with other materials," Mr. Halwarz continues. "We first started using Transite in 1935 to eliminate the cleaning of water mains. We liked it so well that less than a year later we started to use Transite Sewer Pipe. In over twenty years of using it, we have yet to clean or replace a single length of Transite Sewer Pipe. Transite is specified for both water and sewer mains in the town of Winchester."

Each year, in every part of the nation, we see significant increases in the use of Transite® Sewer Pipe. To find out why, send for the new Sewer Pipe data kit—containing flow rates, new Transite crushing strengths, and TR-165, the informative brochure on Transite Sewer Pipe, its application and installation. Write, today, to Johns-Manville, Box 14EN, New York 16, N.Y. In Canada, Port Credit, Ontario.

Transite Ring-Tite® Coupling . . . tight, lasting seal against roots and infiltration of ground water.



JOHNS MANVILLE PRODUCTS

JOHNS-MANVILLE

McCallum Heads New PHS Pollution Control Group

Gordon E. McCallum will head the newly created Division of Water Pollution Control of the U. S. Public Health Service. Mr. McCallum was formerly chief of the PHS's Water Supply and Water Pollution branch.

The new division was formed to administer enforcement activities and construction grants under the Water Pollution Control Act of 1956. For the past two years, water pollution control activities have been carried out in the Water Supply and Water Pollution Control branch of the Division of Sanitary Engineering Services.

Michigan Highway Agency Promotes Five Engineers

The promotion of William A. Sawyer from district road construction engineer, District 1, to assistant road construction engineer has been announced by John C. Mackie, Michigan State Highway Commissioner.

Anton J. Matusich, now assistant district road construction engineer in the 6th District, at Saginaw, will be promoted to fill the position.

Ed Upson, assistant to the road construction engineer of the department, will replace Mr. Matusich in Saginaw.

Joseph L. Oravec, District 1 bridge engineer at Crystal Falls, is being promoted to bridge engineer of the Metropolitan Detroit District. He will be replaced by Lawrence H. Gilroy, a project engineer with the department.

Top Echelon Changes In du Pont Engineering

Melvin E. Wood has been named chief engineer of E. I. du Pont de Nemours & Co., succeeding Granville M. Reid, who retires.

Assistant chief engineer for almost 13 years, Mr. Wood joined du Pont in 1928 as assistant construction superintendent in the Engineering Department, becoming construction superintendent in 1930. In 1933 he was assigned to the Industrial Engineering Division, and six months later he was appointed works engineer at the Niagara Falls plant of the Electrochemicals Department.

Returning to the Engineering Department in 1940, he became assistant manager of the Defense Construction Division in 1941 and manager in 1943. In April of the same year, he was appointed manager of all du Pont construction. He was named manager of the Engineering Department's Design Division in 1945, and the following year, assistant chief engineer.

Mr. Reid, chief engineer for the past 13 years, has been responsible for du Pont's design, construction and engineering research activities during a period of unprecedented expansion. Du Pont's construction expenditures since 1946 have totaled more than $1,700,000,000, not including the $1.3 Savannah River Atomic Engineering Project.

Appointed manager of du Pont's defense construction division in 1941, Mr. Reid supervised building of 54 government ordnance production facilities.

He was made assistant chief engineer in 1943 and in that capacity was responsible for the design and construction of major defense plants, including the Hanford Engineer Works, the World War II plutonium plant, which du Pont designed, built and operated for the Manhattan District.

Charles L. Daniels has been appointed assistant chief engineer of the du Pont Co. Mr. Daniels, technical director of the development engineer division, succeeds Mr. Woods. He joined du Pont in 1928.

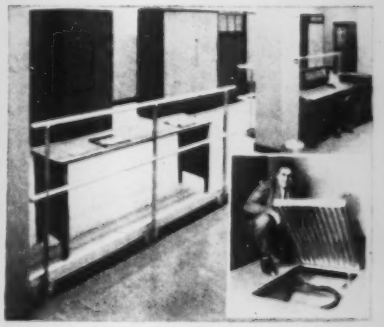
Ray Miller Leaves Hawaii For Australia Assignment

Ray Miller is leaving his position as special engineer in charge of Honolulu's Koolau Mountain Tunnel project for an assignment in Australia.

He was hired to masterminds construction of the tunnel after a series of accidents brought work to a halt (ENR Mar. 22, 1956, p. 30).

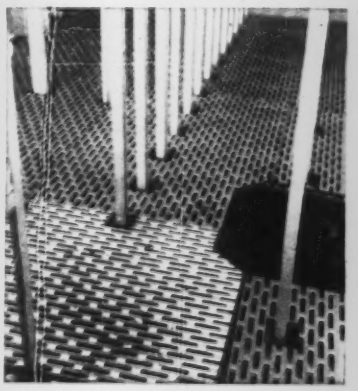
(*Men & Jobs continued p. 74*)

WASHINGTON ALUMINUM FLOORING FITS EVERY REQUIREMENT



RAISED PANEL FLOORING

Wherever equipment for industrial processing, data handling and computing must be installed, specify Washington Aluminum raised flooring. It can be perfectly leveled, regardless of subfloor. It's designed to support tremendous weight loads, yet the panels are light enough to be interchanged for relocation of equipment even after cut outs have been made. Maintenance free Cabling, ducts beneath panels are easily accessible.



NON-SKID FLOORING

Wherever safe footing is desired, here's the answer. Upset design provides non skid traction in all directions even under wet or greasy conditions. Exclusive I-Beam design rivals structural strength of steel at a fraction of the weight. Can be fabricated to any length or width; for any weight load.

SEND FOR FREE FACT BROCHURE

WASHINGTON ALUMINUM COMPANY, INC.
Dept. 3151, Baltimore 29, Maryland

Quaker
Thermoid

VERSICON

the all-purpose hose
with truck-tire durability

FOR COMPRESSED AIR

It's reinforced with braided *rayon*—the fiber that puts 100,000 rough miles into your truck tires. Thus, with twice the tensile strength of cotton (the yarn usually put in this kind of hose), rayon reinforcement over a specially compounded synthetic tube lets Thermoid VERSICON hose do even more jobs for you.

FOR OIL AND GREASE

VERSICON hose is good for compressed air—especially for use with air-operated drills and pumps—for steam, water, oil, grease, gasoline, welding gases, and many dilute acids. Truly versatile!

FOR WATER AND STEAM

In specified lengths up to 500 feet, sizes $\frac{3}{16}$" to 1"; to 250 feet in sizes $1\frac{1}{4}$" and $1\frac{1}{2}$". Ask the Thermoid industrial distributor about VERSICON hose, or write *Thermoid Division, H. K. Porter Company, Inc., Tacony & Comly Sts., Philadelphia 24, Pa.*

THERMOID PORTER DIVISION

H.K. PORTER COMPANY, INC.

HERE'S HOW PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION. Electrical Equipment—DELTA-STAR ELECTRIC DIVISION; NATIONAL ELECTRIC DIVISION; Copper and Alloys—RIVERSIDE-ALLOY METAL DIVISION. Refractories—REFRACTORIES DIVISION. Electric Furnace Steel—CONNORS STEEL DIVISION. VULCAN-KIDD STEEL DIVISION. Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION; and in Canada: Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD.

F. H. McGraw Creates New Executive Posts

Realignment of executive responsibility at F. H. McGraw & Co., Hartford engineering and construction concern, results in three new posts—two senior vice-presidents and a vice-president in charge of administration.

New senior vice-presidents are Frank J. McClean of Hartford, and Donald W. Neville of Chicago. The administrative vice-president is Robert B. Burroughs of the company's New York City office. He is currently secretary, a position he will retain.

Mr. McClean joined the accounting department at McGraw in 1936. He served as secretary, treasurer, controller and, most recently, vice-president in charge of finance.

Mr. Neville started with McGraw as a field engineer in 1939. In 1956, he was named a vice-president and manager of the company's Chicago office.

Mr. Burroughs joined the company in 1951 as an assistant project manager.

Reelected by the board of directors were Clifford S. Strike, president; Paul P. Pape, Joel Morris and Martin E. McDonough, vice-presidents; David Whittlesey, treasurer; and Harry Harvey, controller.

Careers

Business

Sol Merel has been advanced to chief structural engineer for A. Epstein and Sons, Inc., Chicago consulting engineers, and **Richard E. Spencer**, formerly with the University of Illinois' architectural staff in Urbana, has been appointed a project engineer.

David S. Morgan was appointed vice president and contract manager for building construction. **W. W. Lathrop, Jr.**, was elected corporation secretary.

J. J. Berger has been named chief of the Salt Lake City division of Berger Associates, Inc., New York City. The office will have a staff of 22 engineers.

Louis R. Inwood, for six years director of aviation for the city of Philadelphia, will form Louis Inwood Associates, a consulting firm to serve transportation industries.

Gilbert M. Nelson and **Ellis P. Root** have joined the engineering staff of Benjamin F. Beavin Co., consulting engineer of Baltimore. Both men have held supervisory positions in construction of the Ohio and Jersey Turnpikes.

James Kerney, Jr., has been named executive vice president of Delaware River Basin Research, Inc., set up two years ago to make a water-supply-conservation and flood-control study of the Delaware River Basin.

Air shuts off if oil supply runs out with this new LE ROI LO-380 Line Oiler

You'll never burn out another air tool!

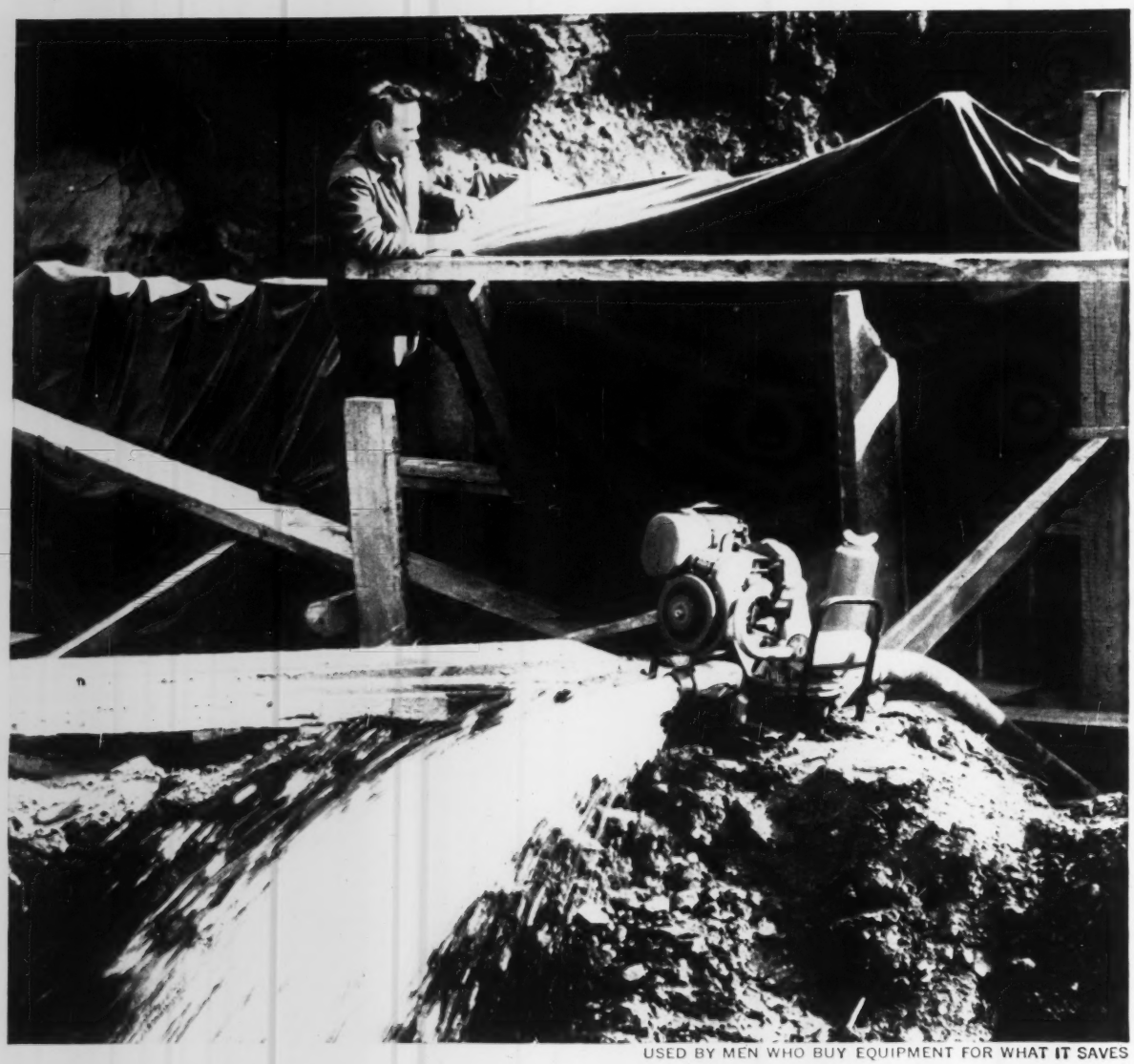
Burned up about air tool burn-outs? Forget 'em — with the new Le Roi LO-380 Line Oiler that *automatically* shuts off air if the oil runs dry.

Your air tools get a steady mist of oil at any pressure from 10 to 150 psi — and *keep* getting it until your operator or the empty oiler shuts off the air. No wasteful wear on critical parts, no costly repairs, no unmetered oil "splurges." And you enjoy easy adjustment of oil feed . . . a dependable tool that's 9 lbs. light; easy to move and operate in any position . . . and a full one-pint capacity. What's more, you can refill the LO-380 while the tool is at work.

Impressed? Investigate! See your Le Roi distributor for more details, or write Le Roi Division, Westinghouse Air Brake Co., Milwaukee 1, Wisconsin. AT-909

LE ROI NEWMATIC® AIR TOOLS

PORTABLE AND TRACTAIR® AIR COMPRESSORS • STATIONARY AIR COMPRESSORS • AIR TOOLS



USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

Easiest Way to do Hardest Pumping

It doesn't matter where you pump or what you pump, the Homelite Diaphragm Pump is the Time-saver and Money-saver for continuous heavy duty work. Weighs only 120 pounds, complete with Homelite quick starting engine . . . less than ½ the weight of most diaphragm pumps of equal capacity. You set it up anyplace, fast. You do your pumping, fast. Handles anything . . . water, sand, mud, muck, solids. Manual throttle control adjusts engine speed for full 5,000 G.P.H. capacity pumping or handling small seepage flow . . . gives greater fuel economy. Suction lift of 28 feet is guaranteed. You get total heads up to 50 feet, including friction. Flapper valves have special self-cleaning action to prevent clogging. For longer wear, gears operating in oil are totally enclosed. For steady footing, pump is mounted on vibration-proof spring skids. See it in action today.

Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call them or write for convincing demonstration or rapid service in any way.

HOMELITE
CARRYABLE
PUMPS GENERATORS • BLOWERS CHAIN SAWS

HOMELITE • A DIVISION OF TEXTRON INC., 1105 RIVERDALE AVE., PORT CHESTER, N.Y.
In Canada — Terry Machinery Co., Ltd.

Obituaries

William L. Lose, 77, founder and president of the Lose Construction Co., Buffalo, N. Y. He was a graduate of Ohio Northern University. His firm was active in the construction of sewage-disposal plants and underwater construction in New York State and Pennsylvania.

Garland A. Peel, 41, civilian civil engineer with the U. S. Corps of Engineers in Washington, D. C.

Captain C. Reid Johnson (U. S. Navy), 67, who commanded 10,000 Seabees in the Normandy invasion in World War II. Capt. Johnson was a native of Baltimore. He graduated from Polytechnic Institute and Cornell University. He served in the Navy during World War I in various public works positions. During World War II he was in charge of public works and construction at the U. S. Naval Base in Iceland. In 1944 he participated in the building of the artificial harbors used in the Allied invasion of Normandy.

John J. Stephenson, 68, retired engineer formerly with U. S. Army Corps of Engineers.

Edmund R. Kinsey, former president of the St. Louis Board of Public Service. As head of the agency for 20 years, from 1913 to 1933, Mr. Kinsey directed construction of streets, buildings and sewers costing $110 million. He also had a hand in the construction of lagoons, roadways and buildings for the Louisiana Purchase Exposition in St. Louis in 1904. Mr. Kinsey was a graduate of Washington University School of Engineering in St. Louis.

Llewellyn C. Osborn, 66, partner in the Denver engineering firm of Phillips, Carter & Osborn. A graduate of Colorado State University, he was a former district director of the American Water Works Association. He was city engineer at Loveland, Colo., from 1919 to 1941. At one time he was with R. J. Tipton & Associates.

F. Harrison Patterson, 58, excavating contractor of Albany, N. Y. He had been a contractor for 34 years.

Merritt B. Smith, 51, senior engineer for the Colorado Department of Highways, at Denver. He was a former employee of the Bureau of Public Roads and served three years with Naval Construction Battalions in the Aleutians during World War II.

TRU-LAY *flexible* PUSH-PULLS

FOR

Remote Control Jobs on a great variety of Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on tractors and their accessories, power shovels, winches, road graders, road oilers, dump trucks, snow plows, engine-driven pumps, rock crushers and other construction equipment.

These dependable Push-Pulls are used for the remote control of hydraulic and air valves, brakes, clutches, transmissions, throttles, chokes, governors, power take-offs, and many other applications.

TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances, up to 150 feet or more.

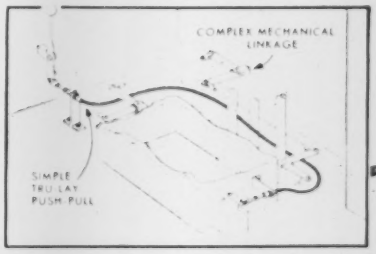
TRU-LAY PUSH-PULLS are dependable and accurate even under the most adverse conditions

They perform effectively under extremes of heat or cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold-swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls increases ease of operation and means the virtual elimination of maintenance.

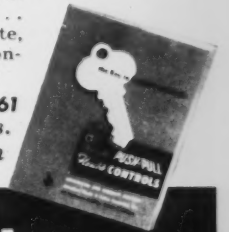
Advantages of Tru-Lay Push-Pull flexibility and simplicity are pictured below

Simplicity vs Complexity

Compare the TRU-LAY PUSH-PULL cable in illustration with the mechanical linkage. PUSH-PULLS are simple, have but one moving part, are noiseless and give lifetime service accuracy. Linkages are complex, made of many parts; they wear at many points. Their use brings increased backlash, lost accuracy and vibration rattles.



"Solid as a rod but *flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, accurate, adaptable, rugged . . . they are the ideal remote controls for construction equipment.



Bulletin DH-461
will answer your further questions.
Write for a copy without obligation

ACCO

Automotive and Aircraft Division
AMERICAN CHAIN & CABLE

TRADE MARK

601-F Stephenson Bldg., Detroit 2
6800-F East Acco Street, Los Angeles 22 • 929-F Connecticut Ave., Bridgeport 2, Conn.

Call La Barge for Pipe!

Call St. Louis
FLanders 1-0185
Collect!

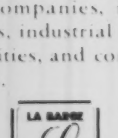
FAST DELIVERY

- **On Quality Steel Pipe,** 1/8" to 36" O. D. Standard, Extra Heavy, Double Extra Heavy, even Double Random lengths.
- **On Rugged Pipe Piles,** 6" to 36" O. D. spiral weld, electric weld and seamless ASTM A-252.
- **On Heavy-Wall Pipe,** seamless steel pipe in lengths from 15' to 45', in ASTM A-53 and ASTM A-106.
- **On A Complete Line of Valves, Welding-fittings and Flanges.**

FAST SERVICE ON

- Coating
- Lining
- Threading
- Welding
- Light Fabrication
- Wrapping
- Cutting
- Grooving
- Sand Blasting
- Painting

For high speed delivery of quality pipe, call on the firm whose customers include more than 2,000 of the nation's major oil and gas companies, industrial contractors, industrial concerns, public utilities, and construction companies.



La Barge
PIPE & STEEL CO.
7400 S. BROADWAY
ST. LOUIS 11, MISSOURI

Propellant loading skids installed at . . .

Omaha and Cheyenne Air Bases

Fifteen contractors from eight states were represented in the bidding for installation of these propellant loading skid assemblies at the Offutt Air Force Base, Omaha, Neb., and the Francis E. Warren Air Force Base, Cheyenne, Wyo.

Installations will be made at three sites on each of these bases. The $2,733,000 award to Winger Construction Co., Ottumwa, Iowa, by the Corps of Engineers, Omaha, is for all six sites. It is 6.6% below the second and nearly 53% below the high of fourteen acceptable bids.

1C Winger Constr. Co., Inc., Ottumwa, Iowa	
Offutt AFB, Omaha, Neb.	$1,366,500
Francis E. Warren SFB, Cheyenne, Wyo.	1,474,500
Total, combination of both projects	2,733,000
2 Independent Contractors & Engrs., Dallas, Tex.	
Offutt AFB, Omaha	$1,463,855
Francis E. Warren AFB, Cheyenne, Wyo.	1,463,855
Total, combination of both projects	2,927,710
14 Cambridge Corp., Lowell, Mass.	
Offutt AFB, Omaha	$3,152,625
Francis E. Warren AFB, Cheyenne, Wyo.	3,168,555
Total, combination of both projects	5,754,000

3 Sites at Offutt AFB, Omaha

Bids: 2-12-59 Items	Unit	Quantity, each base	Unit Prices 1C	2
LO- control valve skid	ea	3	$25,000	$35,893
fill & vent skid	ea	3	18,000	20,414
Oxygen transf vlv skid	ea	3	22,000	21,673
Fuel contr vlv skid	ea	3	19,000	19,744
Nitrogen transf vlv skid	ea	3	33,000	30,325
Helium contr vlv skid	ea	3	29,000	32,439
Store skids after deliv	day	60	25.00	20.00
Engineering services	day	70	100.00	75.00

3 Sites at Warren AFB, Cheyenne

Bids: 2-12-59 Items	Unit	Quantity, each base	Unit Prices 1C	2
LO- control valve skid	ea	3	$30,000	$35,893
fill & vent skid	ea	3	20,000	20,414
Oxygen trans vlv skid	ea	3	24,000	21,673
Fuel contr vlv skid	ea	3	20,000	19,744
Nitrogen transf vlv skid	ea	3	34,000	30,325
Helium contr vlv skid	ea	3	33,000	32,439
Store skids after deliv	day	60	25.00	20.00
Engineering services	day	70	100.00	75.00

Commence: 2-20-59 Complete: 9-1-59 to 12-15-59
Liquidated damages: $300/day

Excavation Is Half of Virginia Road Contract

On a bid 11.6% below the engineer's estimate and almost 59% below the high of eleven bids, Barnhill Contracting Co., Tarboro, N. C., emerged as the successful bidder for this 8.257 miles of grading, drainage and paving, with minor structures, on secondary and frontage roads in Virginia.

This is part of an interstate system project in Hanover and Henrico Counties. The award—$1,458,265—by the Virginia State Highway Commission averages $177,038 a mile. Almost half goes for 1,746,735 cu yd of excavation at 41 cents a cu yd.

Type 1 select material, measured compacted in place, must not be larger than 3 in., not more than 25% passing through a #200 sieve. Compaction is 100% of density at optimum moisture content, conforming to AASHO specification T-99.

Wages include: carpenter $2.00; cement mason $1.50; tractor operator, crawler type, $2.10; truck drivers $1.81-1.25; crane, derrick and dragline operators $2.25; unskilled laborer $1.00.

1C Barnhill Contr. Co., Inc., Tarboro, N. C. and L. A. Reynolds Co., Inc., Winston-Salem, N. C.	$1,458,265
2 Talbott-Marks Co., Inc., Clarksville, Va.	1,583,070
11 Dickerson, Inc., Monroe, N. C.	2,389,705
EE Virginia State Highway Comm., Richmond	1,648,824

Bids: 1-28-59 Items	Unit	Quantity	Unit Prices 1C	2
Clear & grub	ls	job	$50,000	$60,000
Excavation, regular	cy	1,746,735	0.41	0.45
borrow	cy	60,748	0.70	0.50
Sel matl, type 1	cy	125,966	0.60	0.50
Concrete, cl A, AE	cy	4,139	44.50	46.00
Reinforcing steel	lb	487,404	0.11	0.11
Structure, remove existing	ls	job	150.00	250.00
Pipe underdrain, std	lf	13,955	1.75	1.65
mod	lf	3,800	2.25	3.50
comb	lf	210	2.00	2.50
mod	lf	4,116	2.00	3.50
Conc pipe, 12", 1800 a	lf	51	3.00	2.50
15", 2125 a	lf	3,288	3.50	3.00
18", 2400 a	lf	1,927	4.50	3.75
4500 a	lf	233	5.00	4.50
24", 3000 a	lf	2,178	6.50	5.50
5000 a	lf	136	7.25	6.50
30", 5750 a	lf	1,062	9.00	8.25
42", 7350 a	lf	847	15.50	13.50
48", 8000 a	lf	240	19.00	16.50
60", 10,000 a	lf	275	28.00	24.00
Flared end sect, 12"	ea	1	36.00	35.00
15"	ea	55	36.00	40.00
18"	ea	48	45.00	38.00
24"	ea	24	65.00	55.00
30"	ea	4	90.00	90.00
Galv stl pipe, 3"	lf	1,205	0.50	2.50
Drop inlet, on a grade, single opng	ea	9	350.00	350.00
on a sag, dbl opng	ea	8	400.00	750.00
standard	ea	2	350.00	350.00
Paved ditch, 3' bottom	sy	3,534	3.50	4.50
5' bottom	sy	400	4.00	4.50
Cmt conc paved gutter	sy	847	3.50	4.50
Paved conc flume	sy	303	5.00	4.50
Stn grav base erosn contr	cy	9	25.00	10.00
Sign island, type 1	ea	1	125.00	80.00
Pt dir isl curb, tp 11	lf	43	2.25	3.00
Rad dir isl curb, tp 11	lf	32	2.50	3.00
Allay dust, truck hrs	hr	7,000	$2.00	$0.10
Farm fence	lf	90,978	0.52	0.52
Fence gates	ea	25	50.00	60.00
Conc rt of way monuments	ea	263	6.00	7.00
Obscure old road	ea	2	50.00	20.00
Riprap, dry, class 1	sy	1,457	6.50	7.00
Seeding	ls	job	17,000	25,000
Topsoil, cl B, 2"	ls	job	17,550	31,000
Cr run agg, ¾" down, std	t	892	2.25	3.00
Subbase matl, grading 1	cy	2,201	5.00	3.70
Agg base, tp 11, gr C or D 4"	sy	7,854	0.70	0.65
6"	sy	18,751	0.83	0.87
8"	sy	9,533	1.00	1.10
Dry rubble masonry	cy	2	50.00	10.00
Bit matl, RC-0-type 1	gal	4,109	0.15	0.15
	gal	16,934	0.15	0.15
conc, H-3-1	t	1,186	7.50	10.00
type F-1	t	787	7.50	10.00
Cover matl, 9	t	423	5.00	4.50
11	t	500	5.00	4.50
Barb wire fence, 3-strand	lf	60	0.55	0.50
4-strand	lf	600	0.60	0.60
Demolishing 4 items	ls	job	40.00	140.00

Completion schedule: 540 cal days
a Ultimate load-crushing strength, lb

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Iron and Steel Products: Last, Apr. 16; Next, May 14
- Wood Products, Glass, Explosives, Chemicals: Last, Apr. 23; Next, May 21
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Apr. 30; Next, May 28
- Wage Rates, Building Board, Lath, Insulation: Last, Apr. 30; Next, May 28

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl, C. L. lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.,‡ truckload del.,* per block		CONCRETE Ready Mixed 1:2:4 del. 50 cy & over
	Paper	Bulk	Mortar	Gravel, 1½ In.	Gravel, ¾ In.	Sand	1½ In.	¾ In.	1½ In.	¾ In.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.35a‡	$3.95a‡	$3.60a‡	$3.10a‡	$3.10a‡	$1.85‡a	$2.18a	$2.33a	$1.65r	$1.75r	$0.175e	$0.21e	$13.75g
Baltimore	4.32a	3.91a	3.46a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	18a	18a	13.50mn
Birmingham	4.23c	3.80cf		2.53ne	2.53ne	2.13ne	2.75e	2.75e	1.55d	1.65d	.18	.18	13.55g
Boston	5.80sp	4.52ap	4.80imp	3.00qsz	3.00qsz	3.00qsz	1.75qsz	1.85qsz			.23e	.275ae	15.00q
Chicago	4.13ag	3.87ag	3.90 3.95g	3.75‡e	3.75‡be	4.13‡be	3.95‡be	3.95‡be	2.25‡e	2.25‡e	.25‡e	.25‡be	13.50e
Cincinnati	4.68e	4.16e	4.18e	2.29‡ru	2.34‡ru	2.34‡ru	2.64‡ru	2.64‡ru	1.89u	1.89u	.19e	.24ae	13.25qr
Cleveland	1.25‡		3.89‡ae	2.25ae	2.10ae	1.75ae	2.80‡	2.80‡	3.45‡f	3.45‡f		.22‡f	15.50u
Dallas	3.75a	3.25a	3.65a	2.65‡a	2.75‡a	1.90‡	2.43	2.63				.27	12.50z
Denver	4.79a	4.29a	4.79	1.90‡	2.10‡	1.37‡b		3.35‡z			.22	.27ae	11.90
Detroit	4.25a	3.74aqq	3.72a	4.50‡ahm	4.50‡ahm	4.25‡ahm	3.75‡ahm	3.75‡ahm	2.47aqaa	2.47aqaa	.22p	.25‡ap	13.50e
Kansas City	4.23a	3.83a	4.10a			1.70‡a	2.00‡a	2.00‡a			.22a	.26e	13.50
Los Angeles‡	5.12ch	4.65ch	5.60e	2.56‡af	2.76‡af	2.41‡af	2.65‡a	2.40‡a			.17fm	.285m	12.45<lz
Minneapolis	4.52a	4.11a	4.08a	2.70‡ae	2.70‡ae	1.60‡ae	3.95‡ae	3.95‡ae			.19g		13.50‡
Montreal	3.36‡det	3.11‡det	3.72‡det	1.90‡af	2.15‡af	2.40‡a	1.90‡f	2.15‡f	2.00‡	2.00‡	.20‡	.28ft	10.80e&f†
New Orleans	4.06b	3.65b	3.85b	2.45b	2.45b	2.06b‡			1.65d	1.75d	.275e		14.00e
New York	4.76a	4.25a	3.80		3.20bk	2.30bk	3.10bl	3.10bl			.265mw	.32bw	17.60a
Philadelphia	4.57‡ae	4.16‡ae	3.76‡e	2.85‡a	2.85‡a	2.35‡a	2.70‡a	2.80‡a	2.20‡a	2.20‡a	25 .32		14.15d
Pittsburgh	5.65‡ag	4.62‡s	5.00‡ij	2.65‡aqs	2.65‡aqs	3.05‡aqs	2.10‡aqs	2.10‡aqs	2.20ne	2.20ne	.26e	.26e	15.80e
St. Louis‡e	4.16 4.51a	3.76 4.11a	3.58 4.21a	3.45‡ae	3.30‡ae	2.60 3.10‡ae	1.75‡e	1.75‡e			.255‡e	.315‡e	12.65 13.10g
San Francisco	4.34e	3.79e	4.75e	2.02	2.02	2.12	2.17	2.17			.24	.28‡l	13.00e‡e
Seattle	4.22‡a	3.60aq	4.10a	4.25‡m	4.25‡m	4.25‡m	4.30‡m	4.50‡m			.26s	.32s	13.90‡
Toronto	4.00x	3.84d	4.00x	2.40	2.40	2.05	2.40	2.40	2.40	2.40	.26	.275cu	13.75g

‡ Delivered. * Prices incl. dealers discount except as noted. ‡ Add 4% sales tax. ‡‡ Add 2% Intrastate sales tax. R Revised. † Plus 6% Mun & Prov tax.

CEMENT: •a Less 10¢ disc. 15 days. •b Less 2% disc. 15 days. •c Less 10¢ disc. 10 days. •d 10¢ disc. 20 days. •e Truckload lots. •f Fob mill, add $14.58 to $21.31 per car switching charges. •g fob mill + freight. •h LCL. •i Less 2% disc. 10 days. •j Truck lots, fob yard. •k 100 bag lots. •l over 150 sacks. •m Sold in bags only. •n Less 5% disc. 30 days. •o Plus 50¢ for Sat. del. •p 5-8 ton truckload. •q F.o.b. mill.

SAND, GRAVEL, STONE & SLAG: •a Truck lots. •b Per cu. yd. •c 5 tons up. •d Less 5¢ disc. 15 days. •e Less 2% disc. 10th. •f Less 2% disc. 15th. •g Less 5% for cash. •h Less than 5 tons. •j F.o.b. quarry. •k Barge lots asd. •l F.o.b. scow Hudson river. •m Less 2% for cash. •n F.o.b. cars. •q F.o.b. yard. •r less 5% disc. 15th. •s Less 2% disc. 10 days. •t Less 10¢ disc. 10 days. •u Less 5¢ disc. 10 days. •v Less 2% disc. 15 days. •w Less 10¢ disc. 15 days. •x Incl. 35¢ switch charge. •y F.o.b. dock. •z 5-8 tons. •aa Less 5% disc. 15 days.

CONCRETE BLOCK: •a Cinder. •b Waylite. •c Haydite. •d Celocrete. •e 5⅓ x 8 x 12 in. •f 8 x 4 x 16. •g F.o.b. truck at job. •h F.o.b. plant San Rafael. •m F.o.b. yard. •n 8 x 8 x 18. •o Less 2% disc. 10 days. •p Less 2% disc. 10th. •q Less 5% disc. 10th. •r Less 2% disc. 15 days. •s Less 2% disc. cash. •t Siporex, 7 x 8 x 18. •u Less 5% disc. 10 days. •v Less 12% disc. 15th. •w Eff. 1 1 57.

READY MIXED CONCRETE: •a 6 cu yd or over del. Man. •b 25 cu yds or more. •c 10-100 cy. •d 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. •e 2,000 lb comp. •f 2,500 lb comp., less 5% disc. 30 days. •g Less 25¢ disc. 15 days. •h Less 50¢ for cash. •i 5% off for cash. •j 2% off for cash. •k Federal tax included. Add 6% mun. & prov. tax. •l 1:2:3 base price. •m F.o.b. yard. •n Plus escalator clause. •o Less 2% disc. 15 days. •p Less 50¢ disc. 15 days. •q Less 2% disc. 10 days. Add 50¢ per zone. •r 2000 wet. •s Less 5% disc. 10 days. •t Incl. 50¢ heating. •u Less 2% disc. 15th. •v Sat. del. + 50¢. •w 10-100 cy. •x Del in zone 20-B.

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10¢ discount, 15 days. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.45‡	Buffington, Ind	$3.40‡	Steelton, Minn	$3.45‡	Muskegon, Mich	$3.45‡	Toledo, O	$3.45‡
Clinchfield, Ga	3.45‡	Independence, Kan	3.25‡	Leeds, Ala	3.30‡	Saginaw, Mich	3.45‡	Milwaukee, Wis	3.50‡
Kingsport, Tenn	3.45‡	Hannibal, Mo	3.35‡	Duluth, Minn	3.45‡	Wyandotte, Mich	3.45‡	Green Bay, Wis	3.50‡
West Des Moines, Iowa	3.50‡	Northampton, Pa	3.50‡	Hudson, N. Y.	3.50‡	Buffalo, N. Y.	3.55‡	Ironton, O	3.45‡
Nazareth, Pa	3.50‡	Universal, Pa	3.60‡	Alpena, Mich	3.35‡	Oswego, N. Y.	3.60‡	Montreal City	2.5.1
Bath, Pa	3.50‡	Waco, Tex. + 10¢ tax	3.35‡	Detroit, Mich	3.45‡	Cleveland, O	3.50‡	W. Winfield, Pa	3.60‡
Lesley, Pa.	3.50‡	Giant, S. C.	3.45‡	Howes Cave, N. Y.	3.50‡	Alsen, N. Y.	3.50‡	Security, Md	3.50‡

† Price to hold for first quarter of 1959. ‡ Price guaranteed through December 31, 1959.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT, MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta				$26.60‡S	$45.00‡S	$0.11‡S	$0.235S	$0.12neS	$0.235neS	$0.12S	$0.11S	$0.235S
Baltimore	150.00			23.00t		.095r	0.185r	10neE	19neE	10r	105r	0.195r
Birmingham		66.00h		25.12	25.60ci	.1069	0.1093ci	1162	11880i	1000i	1060	0.1093ci
Boston				22.00apS	46.00apS	22.00anS	46.00anS	105aneF	24aneF	14a0R	150R	
Chicago	150.00‡a	90.00‡ab	3.95 4.00‡af	22.00f	32.00f	20.40fn	30.40fn	106neH	18neH	08b		
Cincinnati				26.00ST				1165neST				
Cleveland		89.50‡d	6.30	26.00r4		26.00r4		1165neAP			1265t4	21.4
Dallas	e	40.80p	e	26.82	46.20	1138	1983	30.45	52.40	1100	1138	1983
Denver		62.00a										
Detroit		116.00		30.59		30.38ce		13.28neI		1133		28
Kansas City	e	e	e	18.00e		18.00e		0825neJ		079e	0.125e	
Los Angeles	e		e	21.50dmz		21.50dez		23.00dK		22.00dmn	23.00‡Xn	26.30‡Xn
Minneapolis	e		3.73A	26.00		26.00e		0.115ne		0.105	1366	
Montreal	e	e	e	36.50h	43.60m	167n	211n	17.80neE	22.20neE	155n	242n	27nX
New Orleans				20.00e		20.00e		095ene		085eB	095eBL	1905eB
New York			3.70‡	20.00m	42.94m	20.00t	40.94tt	0.61eF	10.01eF		9.68u	10.11u
Philadelphia	175.185	110.120	4.06	18.21‡		20.21‡J		0.085 10‡J		0.085 10‡J		
Pittsburgh	60.00‡	95.00n	6.35n	31.20ne		31.20ne		1403‡S		14‡S	1403s	
St. Louis‡e				19.74‡		18.75‡f		095‡	1092‡e	0.105‡	18.25‡f	085‡Q
San Francisco		70.00		23.50qdd	42.00qdd	23.50qdd	42.00qdd	24.50qNdd	43.00qNdd	24.25qeRdd	24.50qeXdd	20.22qXdd
Seattle				25.00e	40.00h	25.50ene		26.50EE		24.25‡eY	23.50‡eX	45.10‡eX
Toronto		148.50‡2	4.50‡	40.50	54.11ee	0.2106	0.25ee	0.2226	0.2506	0.206	0.2185Ze	27.27ee

‡ Delivered. ‡‡ Add 4% sales tax. ‡‡‡ Add 2% intrastate sales tax. R Revised.

PAVING BRICK & BLOCK: •a Less 2% disc. 10th. •b 3 x 3½ x 8. •c 2½ x 8½ x 4. •d Truckload lots. •e Not used. •f 2" interior 6 lb. tr. •g Less $1 Midsc. 15th. •h 2" tr, 8 lb. •j 3 x 3½ x 8. •k 2½", 6 lb. tr. •l Used. •m Redshale. •n Pine oak $6.57. •o Truck del. •p Less $1 M disc. 15 days. •q Used: $40; new: $80.

ASPHALTS: •a F.o.b. refinery, Everett, Mass. •b F.o.b. refinery, Lockport, Ill. •c F.o.b. Sugar Creek, Mo. •d F.o.b. refinery, El Segundo. •e F.o.b. Baton Rouge. •f F.o.b. Hartford, Ill. •g F.o.b. refinery, Richmond, Calif. •h F.o.b. Martinez. •i F.o.b. refinery, Baltimore. •j F.o.b. refinery, Inglewood, Calif. •k 50-110 penetr. •l Less than 100 penetr. •m 40-300 penetr. •n F.o.b. refinery, Montreal. Fed. tax included; add 6% for mun. & prov. •o Drums not avail. •p Shipped in steel bbl. •q 80-70 pen etr. •r In customer's drums. •s Shipped in drums, per drum. •t 150-300 penetr. •u Per 100 gal. •v Per ton. •w Per gal. •x Also tank trucks. •y F.o.b. Oakland. •z F.o.b. Edmonds. •A F.o.b. refinery, Cleveland. •B F.o.b. Destrehan, La. •E RC. •F Also RC. •G Also MS. •H RC 0-5 incl. •I MC 4. •J MC, RC $0.095. •K MC 3, 4, & 5. •L MS. •M MC 1-5, RC 1-5, $0.0919. •N MC 3. •O Truck-load. •P F.o.b. refinery, Atlanta. •Q F.o.b. Eldorado, Ark. •R Delivered within 50 mi. •S Less 2% disc. 10 days, net 30. •T Less 1% disc. 10 days. •U F.o.b. refinery. •V Less 2% disc. 15 days. •W SC 2. •X RS 1. •Y SC 1. •Z Incl. 10¢ Sales Tax. •aa SC 3. •bb RS 3. •cc In used drums. •dd less disc of $1.ton. •ee 45 Imp. gal. drums.

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

Mass., Worcester—SUPERMARKET—Sunderland Realty Trust, c/o Domian & Sark, archts., 340 Main St., soon lets contract 30,000 sq. ft. supermarket, Sunderland Rd., $400,000. CD 3/5.

▲ Mass., Amherst—SCHOOL EDUCATION, etc.—BA 5-22—Commonwealth of Mass., Dept. of Pub. Works Div. Bldg. Constr., 18 Chauncy St., Boston, USB-2 Contr. 2, school education and laboratory practice, University of Massachusetts, $2,000,000. Plans deposit $100. Desmond & Lord, 6 Beacon St., Boston, archts. CD 12-19-57.

▲ Mass., Watertown—SCHOOL—BA 5-27, Town Common, St., high school addn., alterations, $1,475,000. Plans deposit $100. Rich & Tucker Assoc., 45 Newbury St., Boston, archts. CD 1-7-57.

HEAVY CONSTRUCTION—LB & CA

† J. R. Cianchette, 120 Main St., Pittsfield, Me., LB $857,755, est. $875,690, runway over-runs, Loring Air Force Base, (FNO. 19-016-59-111, LIMESTONE, Me.), S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids Apr. 22. CD 3-27.

▲ MASSACHUSETTS—Commonwealth of Mass., Metropolitan Dist. Comm., Parks Dist., 20 Somerset St., Boston.

Beacon Constr. Co., Inc., 100 Hano St., Allston, Mass., CA $1,049,836, est. $1,060,000, reconstr. Longfellow Bridge, Contr. 1127, Cambridge, Boston, Engineering Co., Inc., 177 State St., Boston, Mass., engrs. Bids Apr. 8. CD 4-13, under LB.

MASSACHUSETTS—Commonwealth of Mass., Dept. of Pub. Works, 100 Nashua St., Boston. CD 3-27.

Coleman Bros. Corp., P. O. Box 37, Reddington, Mass., LB $654,800, est. $750,110, widen west bdg. Rte. 128, incl. 2 bridges, FA () 272, sect., Wakefield. CD 4-8.

▲ MASSACHUSETTS—Commonwealth of Mass., Dept. of Pub. Works, 100 Nashua St., Boston.

Daniel O'Connell's Sons, Inc., 480 Hampden St., Holyoke, Mass., CA $2,083,074, est. $2,700,000, state hy. and bridge constr., Interstate Rte. 91, FA Proj. 1-91-1(5), 47 concrete and 8arrier-free bridges, 23 CD 2-6, under LB.

Paino-LaCava Co., 172 Water St., Waltham, Mass., CA $727,226, est. $800,000, Contr. 244, Section 18, Spot Pond Brook Flood Control Proj., Malden and Melrose, MASSACHUSETTS, Commonwealth of Mass., Metropolitan Dist. Comm., Contr. Div., 20 Somerset St., Boston, Mass. Bids Apr. 16. CD 4-21, under LB.

† Jefferson Constr. Co., 75 1st St., Cambridge, Mass., LB $785,456, est. $819,105, permanent barracks for Enlisted Men, U. S. Naval Station, NB, 19253, Spec. 19253-58, (REVI-NEWPORT, R. I.), Area P. Wks. Office, 1st Naval Dist., Bldg. 37, 495 Summer St., Boston, Mass. Bids Apr. 22. CD 4-6.

† Torrington Building Co., Inc., 157 Migeon Ave., Torrington, Conn., LB (1) $785,000, (2) $763,635, offsite improvs., incl. sewage disposal plant, underground sanitary, drainage and water distr. sys., standpipe, 1 story, concrete masonry, plant 30 x 40 ft., two 2 ft. concrete digester tanks, 235,000 gal., 94 ft. diam., 45 ft. high standpipe for 500 units, Capehart Housing, U. S. Naval Submarine Base, NB, CHI-21290, Spec. No. 21290-59, (GROTON, CONN., Area P, Wks. Office, 90 Church St., New York 7, N. Y.) Bids Apr. 22. CD 4-20.

BUILDINGS—LB & CA

C. Profenno Co., 127 Marginal Way, Portland, Me., LB $951,100, est. $900,000, PATIENTS' BLDG., State Hospital, BANGOR, ME., State Institutional Service, State Office Bldg., Augusta, Me. Bids Apr. 22. CD 4-27.

▲ E. J. Pinney Co., Inc., 220 Dwight St., Springfield, Mass., CA $1,623,285, est. $1,600,000, SENIOR HIGH SCHOOL, EAST LONGMEADOW, MASS., Town Supt. Schools, 50 Hanaard Hill, East Longmeadow, Mass. Bids Apr. 9. CD 4-14, under LB.

▲ Grande & Son, Inc., 175 Maywood Ave., Maywood, N. J., CA $1,090,402, (NIKE) NO. 1 (Fire Control) (NIKE) (LITTLE FERRY, (SECAUCUS), N. J., Area 17A, Div. of Constr., New York District, Corps of Engrs., U. S. Army, New York, N. Y. Bids Apr. 24. CD 4-13.

▲ † Fusco-Amatruda Co., 59 Amity Rd., New Haven, Conn., CA $1,434,000, (DORMITORIES), NEW LONDON, CONN., U. S. Coast Guard Academy, Mohegan Ave., New London, Conn. Bids Apr. 15, awarded Apr. 23. CD 4-21, under LB.

Mayo Constr. Co., 1285 East St., New Britain, Conn., LB $995,000, 12 bidders, 64,000 sq. ft. HIGH SCHOOL, High St., PORTLAND, CONN., Bd. of School Bldg. Comm., Town Hall, Portland, Conn. Bids Apr. 22. CD 4-7.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ N. Y., Buffalo—BA 5-21—Pa. Thruway Auth., Buffalo, structure and machinery for Michigan Ave. Bridge, McFarland & Johnson, 333 Front St., engrs. CD 1-30.

BUILDINGS—BA

† N. Y., Fort Jay—SCHOOL—BA 5-19—Regional Dir., Household Finance Agency, 346 Broadway, New York, Zone 13, elementary school addn., Fort Jay, Governors Island, $500,000, Knappe & Johnson, 2110 Northern Blvd., Manhasset, archts. CD 2-13.

▲ N. J., New Brunswick—LIBRARY—BA 5-26—Rutgers University, College Ave., library and classroom, Douglass College campus, $1,000,000. Plans deposit $25. Warner, Burns, Toan & Lunde, 414 Madison Ave., New York, N. Y., archts. (Correction—architects and bid date). CD 4-22.

▲ Pa., Coudersport—SCHOOL—BA 5-26—Pa. Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, Junior-Senior High School for Coudersport Jt. School Dist. (Proj. 805-598), $1,200,000. Plans deposit $25. R. A. Freeburg, 16 E. 4th St., Jamestown, N. Y., archt. CD 6/10.

BUILDINGS—SLC

▲ Md., Baltimore—HOSPITAL—Mercy Hospital, Calverts and Saratoga Sts., Zone 2, soon lets contract (Phase 2) steel fabrication and erection for hospital, Taylor & Fisher, 130 W. Hamilton St., Zone 1, archts. Van R. P. Sixe, 1701 St. Paul St., Zone 2, structural engr. CD 8-13-56.

HEAVY CONSTRUCTION—LB & CA

▲ NEW YORK—State Dept. P. Wks., State Office Bldg., Albany. Bids opened 4-24.

Beto Constr. Corp., P. O. Box 70, W. River Rd., Waterford, N. Y., LB $1,444,830, FA $1,893,000, 13 bidders), h. Eng. 4-29-58), 1.52 mi., reconst. 1 compressed W.F. beam bridges, 3 span, 247.4 ft., 2 span 137 ft. and 2 span 130 ft., widen existing 42 ft. span with box closed bridge, Horseheads-Cayuta, Pt. 1, Horseheads-Cayuta, SN 5427A, Rte. 13, FA-SH 5427, FARC 58-29, Proj. 5427, Chemung, C. CD 2-6.

▲ Pres. and Comrs., Town of Elkton, Elkton, Md., rejected bids Mar. 4, sewage treatment plant, sewers and pumping facilities, ELKTON, MD., LB $1,473,000. CD 3-6, under LB.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

BUILDINGS—LB & CA

▲ George F. Driscoll Co., 41 E. 42nd St., New York 17, N. Y., CA Est. $1,250,000, 7 story, Loyola FACULTY HALL addn., ST. CATHERINE, NEW YORK, N. Y., Fordham University, Fordham Rd., New York, N. Y., Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York 17, N. Y., archts. CD 11-11-54.

▲ Irwin & Leighton, Inc., 1505 Race St., Phila., Pa., LB $1,297,000, general constr., HOSPITAL, LOCK HAVEN, PA., Lock Haven Hospital, Lock Haven, Pa., Bids Apr. 7. CD 4-2.

Morrow Bros. Inc., 2315 N. Charles St., Baltimore, Md., CA $776,900, OFFICE alterations, 10 E. North Ave., BALTIMORE, MD., The Equitable Trust Co., Munsey Bldg., Baltimore 2, Md. CD 3-26, under LB.

Anchor Constr. Co., 4811 Harford Rd., Baltimore 14, Md., LB $758,878 (6 bidders), brick, steel, concrete LABORATORY SCHOOL, State Teachers College, TOWSON, MD., State Dept. P. Improvs., 506 Park Ave., Baltimore 1, Md., E. Finney & Assoc., 340 W. 24th St., Baltimore 11, Md., archts. CD 4-22, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

▲ S. C., Charleston—BA 5-20—Comrs. P. Wks., 14 George St., Charleston, 30,000 gpd clarification basin, appurtenances. Plans deposit $75. John R. Betts, 14 George St., engr. CD 1-18-57.

BUILDINGS—BA

▲ Tenn., Knoxville—RESIDENCE HALL—BA 5-20—University of Tennessee, Knoxville, Phase 2, woman's dormitory hall, $2,000,000. CD 11-19.

▲ † Va., Portsmouth—POST OFFICE—BA 6-2, Public Buildings Service, Room 7128, Regional Office Bldg., General Services Admin., 7th and D Sts. S.W., Wash., 25, D.C., remote except passenger elevators, United States Post Office, etc., Appr. No. 47 x 1147, Proj. No. 51043, Contr. No. GS-83-B-6440, $1,575,000. Plans deposit $100. Oliver & Smith, T. David Fitz-Gibbon, 333 West Freemason St., Norfolk, archts. CD 2-24-58, under Commercial Buildings.

HEAVY CONSTRUCTION—LB & CA

† Doyle & Russell Contrs., Central National Bank Bldg., Richmond, Va., CA $710,000, high temperature mechanical dynamic facility bldg., Langley Field, LANGLEY AIR FORCE BASE, VA., National Advisory Committee for Aeronautics, Langley Field, Va., Clark, Nixon & Nixon, Midtown Bldg., Norfolk, Va., archts.-engrs. CD 9-11-52.

▲ † Virginia Engineering Co., Inc., 80 24th St., Newport News, Va., CA $4,988,885, Langley BOMARC Proj. No. FNO-44-110-59-31, LANGLEY AIR FORCE BASE, VA., S. Eng., foot of Front St., Norfolk 1, Va. Bids Apr. 21, awarded Apr. 21. CD 4-21, under LB.

▲ Peoples Gas Co., 564 126 St., North Miami, Fla., separate contracts, $3,000,000, natural gas lines, Broward and Dade Counties, FLORIDA.

H. E. Wolfe, P.O. Box 1361, St. Augustine, Fla., CA $913,247, grading, paving, 3 bridges, Heckscher Drive Interchange and State Rd. 5, JACKSONVILLE, FLA., Jacksonville Expressway Auth., 1022 Miami Rd., Jacksonville, Fla. Bids Mar. 13. CD 3-29, under LB.

W. L. Cobb Constr. Co., P.O. Box 977, Tampa, Fla., LB $679,251, street improvs., Section 2, ST. PETERSBURG BEACH, FLA., City, City Hall, St. Petersburg Beach, Fla. Bids Apr. 20.

W. H. Armston Co., P.O. Box 36, Dunedin, Fla., LB $312,372, street improvs., Section 1, St. Petersburg Beach, Fla.

▲ Flaco Corp., Laidlaw Contr. Co., Wolf Bridge Rd. and Farmer Constr. Co., 2152 Halls Mill Rd., all Mobile, Ala., LB $1,437,498, est. 1,500,000, Wragg Swamp Drainage Canal, 4 mi., between Cottage Hill Rd. and U.S. 90 S. to Dog River, MOBILE, ALA., City, City Hall, Mobile, Ala. Bids Apr. 22. CD 3-25.

M. & W. Constr. Co., P.O. Box 388, Tupelo, Miss., CA $646,457, bridges and relocation roads over Lower Tallahatchie Reservoir, Contr. 58-42, BELZONI, MISS., Bd. of Supvrs., Humphreys Co., Court House, Belzoni, Miss. Bids Apr. 6. CD 4-13, under LB.

▲ LOUISIANA, State Dept. Hys., Rm. 307, Hy. Office Bldg., Baton Rouge, Bids opened 4-22.

La. R. B. Potashnick Constr. Co., Box 423, Cape Girardeau, Mo., LB $5,932,054, drainage structures and related work, 8.888 mi., Little Alma-Pumpkin Bend Bridge, Hy. Rte. 110, SP No. 419-01-02, FAP No. 110-(4) 250, Orleans Parish.

La. Nichols Constr. Co., 2843 Airline Hy., Baton Rouge, LB $1,336,181, drainage structures, 0.69 mi., Plank Road Interchange, Rte. LA 51, LA-US 190, and LA 67, SP 7-09-29, FAP No. U-166-(4), East Baton Rouge Parish. CD 4-20.

Bell Bros. Constr. Co., 2400 Cypress St., New Orleans, LA $833,831, [illegible]

Foley Constr. Co., 6060 Orchard [illegible] LB $888,563, 4-in. steel grading, drainage, Bullitt County, [illegible] NORTON, KY., Kentucky Dept. of Hys., Bd. Apr. 22. CD 4-6.

BUILDINGS—LB & CA

▲+ Doyle & Russell, 823 W. 21st St., Norfolk, Va., LB $1,922,848, LAUNCHING FACILITIES, Wallops Island, VIRGINIA National Aeronautics & Space Admin., Langley Air Force Base, Langley, Va. Bids Apr. 23, CD 3-10.

▲ Model Developers, Inc., c/o Merriam Insurance & Realty Co., Panama City, Fla., Separate Contracts, $2,000,000, 200 RESIDENCES, Springfield Heights Subdivision, PANAMA CITY, FLA.

▲ Jones & Hardy, Box 98, Montevallo, Ala., CA $1,718,604, BIOLOGICAL and PLANT SCIENCES BLDG., AUBURN, ALA. Alabama Polytechnic Institute, Auburn, Ala. Bids Mar. 5, CD 3-12, under LB.

MIDDLE WEST

BUILDINGS—BA

▲ Ill., Chicago—CHEMICAL RESEARCH—BA 5-15—Illinois Institute of Technology, Armour Research Foundation, 10 W. 35th St., chemical research bldg., $3,000,000, Schmidt, Garden & Erikson, 104 S. Michigan Ave., archts., CD 11-18.

HEAVY CONSTRUCTION—LB & CA

▲ INDIANA—State Hy. Comm., State House Annex, Indianapolis, Zone 4.

Dyer-Litz, Inc., Dyer Constr. Co., 1716 Sheffield St., Dyer, Ind., CA $1,923,525, road Contr. R-4620, Lake Co. Bids Feb. 24, CD 3-2, under LB.

▲ Spencer White & Prentice, 10 East 40 St., New York, N. Y., CA $1,090,228, Navy Pier improvs., rehabilitation exist. transit shed, 1,100 ft. underpin foundations and track relocation, CHICAGO, ILL., Dpt. Purchases, City, City Hall, Chicago, Ill. Bids Apr. 7. Awarded Apr. 21, CD 4-13, under LB.

▲ WISCONSIN—State Hy. Comm., State Office Bldg., Madison.

Alexander Constr. Co., Inc., 3441 Hiawatha Ave., South Minneapolis 6, Minn., CA $1,234,134, grade, subbase, base and pavement 3.3±7 mi., Hudson-Eau Claire Rd. (Hudson-C.T.H. U, Sect. 1), I.M. 94, Contr. 1, Proj. I-94-1(42)10, St. Croix Co. Bids Apr. 14, CD 4-17, under LB.

▲ MICHIGAN—State Hy. Dpt., Mason Bldg., Lansing. Bids opened 4-22.

Mich.—Louis Garavaglia, 24220 Mound, Center Line, Mich., LB $809,115, dual grade separations at Chesapeake and Ohio tracks and 1.4± mi. south M-46 and other 2.4± mi. south M-81, Washington Ave. Structure, Saginaw Co.

Mich.—Owen-Ames-Kimball Co., 38 Pearl N.W., Grand Rapids, Mich., LB $318,756, Franklin St. structure, Grand Rapids City, CD 4-14, under Streets and Roads.

▲ MICHIGAN—State Hy. Dpt., Mason Bldg., Lansing. Bids opened 4-22.

Mich.—Raff & Dexter, 3100 Cambridge Rd., Lansing, Mich., LB $1,030,281, grading, dual 36 ft. concrete pavement, water main relocation, lighting and electrical work, incl. bridge spanning Grand River from Market Ave. to Fulton St., CD 4-14.

Mich.—C. E. Utterbeck, M-20, Mt. Pleasant, Mich., LB $426,672, grading, non-skid surf. treatment 6.2 mi. M-46 from Montcalm-Newaygo Co. line west, Newaygo Co., CD 4-14.

▲ MICHIGAN—State Hy. Dpt., Mason Bldg., Lansing.

Louis Garavaglia, 24240 Mound, Center Line, Mich., CA $1,582,881, 1.5 mi. grading, drainage work and lighting facilities Edsel Ford Expressway from Kingsville Ave. to Vernier Rd. in Cities Detroit, Harper Woods and Grosse Pointe Woods, Wayne Co. Bids Feb. 18, CD 3-2, under LB.

▲ MICHIGAN—State Hy. Dpt., Mason Bldg., Lansing.

Holloway Constr. Co., Livonia, Mich., CA $2,034,123, 5.7 mi. Detroit-Chicago Expressway (U. S. 12, relocated) incl. 5 mi. expressway and 5 structures from 18½ Mile Rd. in Calhoun County east to 22½ Mile Rd., structures on 5 mi. section will incl. grade separation to carry 18½ Mile Rd. over Expressway, Partello Rd. full interchange, Rice Creek dual bridge, 20 Mile Rd. grade separation, 22½ Mile Rd. full interchange, Calhoun Co. Bids Mar. 4, CD 3-11, under LB.

BUILDINGS—LB & CA

Leo J. Brielmaier, 1028 Straight St., Cincinnati, O., CA $795,700, 64 unit row-type HOUSING, Lincoln Heights, CINCINNATI, O. Cincinnati Metropolitan Housing Auth., 1649 Armory, Cincinnati, O. Bids Apr. 7, CD 4-11, under LB.

▲ Sapulpa Tank Co., Inc., Sapulpa, Okla., CA Est. $2,500,000, 10 million bu. GRAIN ELEVATOR, MAUMEE, O., Anderson Co., Illinois Ave., Maumee, O.

Oakdale Constr. Co., 2414 Clover Rd., Cleveland 18, O., Owner Builds, $800,000, 37 HOMES, Spencer Dev., ROCKY RIVER, O.

▲ Ralph Shirmeyer, Inc., 1203½ E. Washington St., Fort Wayne, Ind., Owner Builds, $7,000,000, 561 unit HOUSING, Crest Wood Colony, St. Rd. 427, FORT WAYNE, IND.

▲ Norman Cohn, 222 W. Adams St., Chicago, Ill., CA $4,500,000, Canterbury Shopping Center, 164th and Kedzie Aves., MARKHAM, ILL. Canterbury Gardens, Inc., 176 W. Adams St., Chicago, Ill., Sidney H. Morris & Assocs., 134 N. LaSalle St., Chicago, Ill., archts. CD 2-24-58.

Franklin-Cress Contrs., Leland Office Bldg., Springfield, Ill., LB $998,163 (13 bidders), general constr., CITY HALL, SPRINGFIELD, ILL., City, City Hall, Springfield, Ill. Bids Apr. 22, CD 3-25.

▲ A. L. Jackson Co., 300 W. Washington St., Chicago, Ill., CA $1,000,000, 1 and 2 story, 28,000 sq. ft. RESEARCH LABORATORY and OFFICE, MT. PROSPECT, ILL., Charles Bruning Co., 1800 Central Rd., Mt. Prospect, Ill. A. Epstein & Sons, Inc., 2011 Pershing Rd., Chicago, Ill., archt. Awarded Apr. 2.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲+ Minn., Duluth—BOMARC FACILITIES—BA 5-14—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, Zone 1, surface facilities, IM 94-3, Duluth Air Force Base, ENG-21-59-018-59-27, $4,300,000, CD 4-14.

BUILDINGS—BA

▲+ N. D., Grand Forks—HOUSING—BA 5-26—Base Procurement Office, Grand Forks Air Force Base, 304 unit, Capehart Housing, Grand Forks Air Force Base (No. 2), IFB-32-605-59-24, $5,016,000, Fox-Stanley Engineering Co., 221 N. 5 St., archts. CD 4-27.

HEAVY CONSTRUCTION—LB & CA

▲ MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul. Bids opened 4-24.

Minn.—Minnesota Valley Imprvt. Co., Granite Falls, Minn., LB $541,933 (10 bidders), grav. base, plant mixed bit. base and surf. 17 mi. near Cosmos, Kandiyohi and Meeker Counties.

Minn.—E. W. Coons Co., Box 249, Hibbing, Minn., LB $383,711 (8 bidders), sand-grav. sub-base, grav. base, road-mixed bit. base, surf., 0.8 mi. and Bridge No. 9256, in Duluth, St. Louis Co.,

Minn.—J. E. Barsness, Glenwood, Minn., LB $346,152 (6 bidders), sand-grav. sub-base, grav. base, plant mixed bit. surf. 4.6 mi. near Appleton, Swift Co. CD 4-9.

▲+ Guy H. James, Constr. Co., 4901 N. Sewel St., Oklahoma City, Okla., CA $3,108,693, Dardanelle Lock and Dam on Arkansas River near Dardanelle, ARKANSAS, U. S. Eng., 700 Broadway, Little Rock, Ark. Bids Apr. 8, CD 4-10, under LB.

▲+ General Concrete Co., Box 1012, Lincoln, Neb., CA $1,495,161, runway and apron paving, Lincoln Air Force Base, ENG-25-066-59-93, LINCOLN, NEB., U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Mar. 19, CD 4-1, under LB.

† Virginia Carolina Electrical Works, Inc., 1007 E. Main St., Norfolk, Va., LB $987,000 (10 bidders), air conditioning, Bldgs. 2, 3, 4, 20, 21 and 23 at Veterans Administration Hospital, TOPEKA, KAN., Veterans Admin., Munitions Bldg., Washington, D. C. Bids Apr. 21, CD 4-20.

▲+ Ace Constr. Co., 4711 Shamrock Rd., Omaha, Neb., CA $1,395,982, relocation of Rogers County Road near Oologah Reservoir on Verdigris River, north of Tulsa, Sect. 1, ENG-34-066-59-82, OKLAHOMA, U. S. Eng., P. O. Box 61, Tulsa, Okla. Bids Apr. 16, CD 4-22, under LB.

† Duard Pyle, 3409 Classen, Oklahoma City 18, Okla., LB $982,600, est. $992,010, first stage Coffeyville for Eufaula Reservoir, ENG-34-066-59-84, OKLAHOMA, U. S. Eng., P. O. Box 61, Tulsa, Okla. Bids Apr. 23, CD 3-20.

Richards & Assoc., Carrollton, Ga., CA $900,100, 68 mi. 69 kv on H frames electric transmission line, Anadarko, OKLAHOMA, Western Farmers Electric Co-Operative, Anadarko, Okla. Bids Feb. 26, CD 3-10.

TEXAS—State Hy. Comm., Austin.

Spaw-Glass, Inc., 2411 Times St., Houston, Tex., CA $861,291, base structures, shell base and C. conc. 2.558 mi. Hy. U. S. 90-A, Proj. U 812 (29), Harris & Bids Feb. 14, CD 2-19, under LB.

▲+ Peter Kiewit Sons Co., 1024 Coronado Place, Oklahoma City 12, Okla., LB $1,234,632 (4 bidders), runway overlay and replacement steel for ATA operations aprons and Colorado City Air Runway overpass, Webb Air Force Base, ENG-41-443-59-11, BIG SPRING, TEX., U. S. Eng., 100 W. Vickery, Fort Worth, Tex. Bids Apr. 23, CD 4-13.

▲ MONTANA—State Hy. Comm., Helena.

Mont.—Peter Kiewit Sons Co., 1024 Omaha National Bank Bldg., Omaha, Neb., CA $1,360,741, surf. 4.24 mi. Int. Sys. beginning 6 mi. west of Butte and extend S.W. incl. 300 ft. rein.-con. overpass and 2 prestress. steel overpasses, Silver Bow Co.;

Mont.—Northwestern Engineering Co., 1311 St. Joe St., Rapid City, S. D., CA $172,265, surf. 15.63 mi., Plentywood-Canada Line Rd., Sheridan Co.;

Mont.—Fred H. Slate Co., Oregon Ltd., Contractors, 2006 S.W. 40th Ave., Portland, Ore., CA $961,524, grade, surf. 9.7 mi., Philipsburg-Maxville Rd., US Hy. 10A, Granite Co.;

Mont.—Carlson Lien Co. & Central Conto. Co., Deadwood Rd., Rapid City, S. D., CA $762,435, surf. 4.18 mi. Int. Rte. beginning 2½ mi. east of Glendive and extend S.E., Dawson Co.;

Mont.—Norgaard & Hillings, Williston, N. D., CA $496,894, surf. 9.84 mi. U.S. Hy. 2 beginning at Poplar and extend west, Roosevelt Co.;

Mont.—Asbell Bros. & Wyoming Paving Co., Riverton, Wyo., CA $440,549, surf. 39.34 mi. Armells Creek-Hays Harlem Rd., Blaine Co.;

Mont.—United Constr. Co., Baileville, Mont., CA $178,469, surf. 8.09 mi. Circle-Weldon Rd., McCone Co. Grand total $4,372,877, Bids Apr. 22, CD 4/9.

▲+ Space Corp., P. O. Box 1496, Garland, Tex., CA $1,091,046, maintenance bldg., Francis E. Warren Air Force Base, ENG-25-066-59-100, CHEYENNE, WYO., U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Apr. 17, CD 4-21, under LB.

▲ NEW MEXICO—State Hy. Comm., State Hy. Bldg., Cerrillos Rd., Santa Fe.

N. M.—D. D. Skousen & Sons, 208 Springer Bldg., Albuquerque, N. M., CA $96,032, est. $110,670.

(Continued on page 84)

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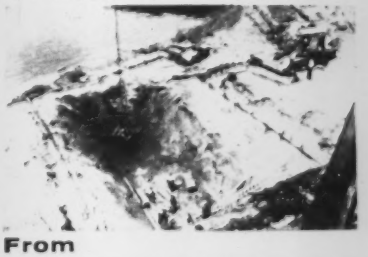

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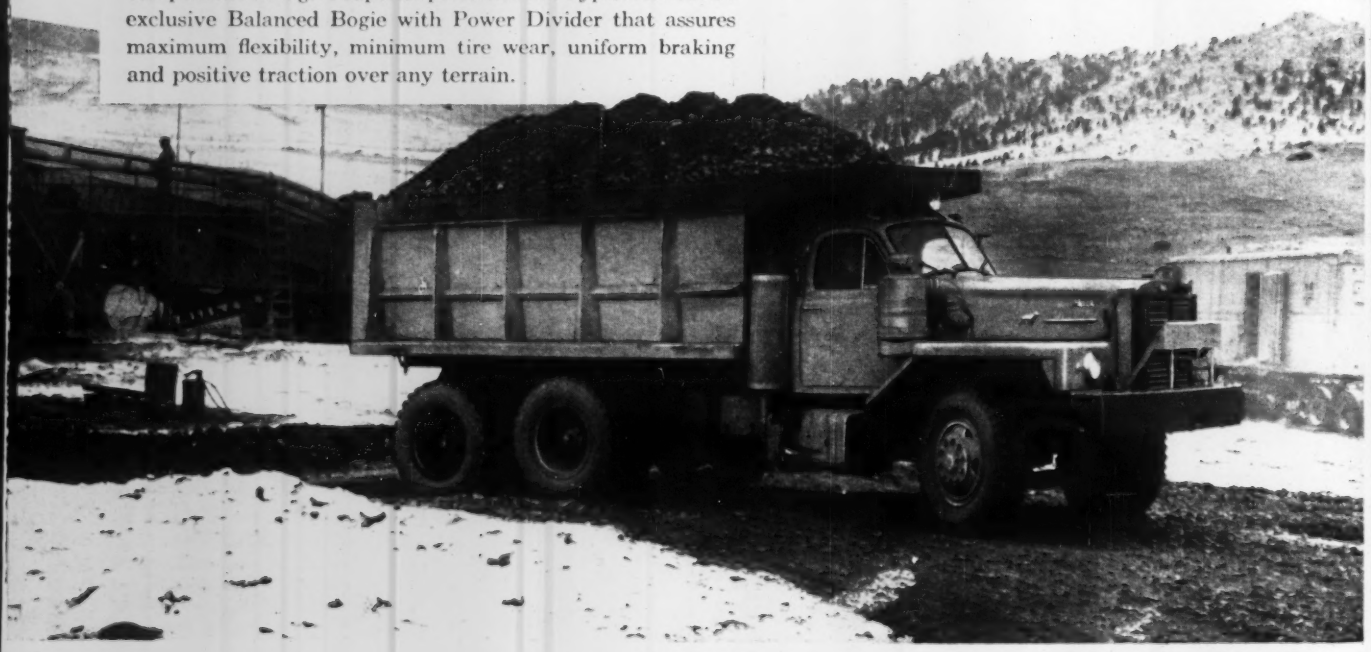
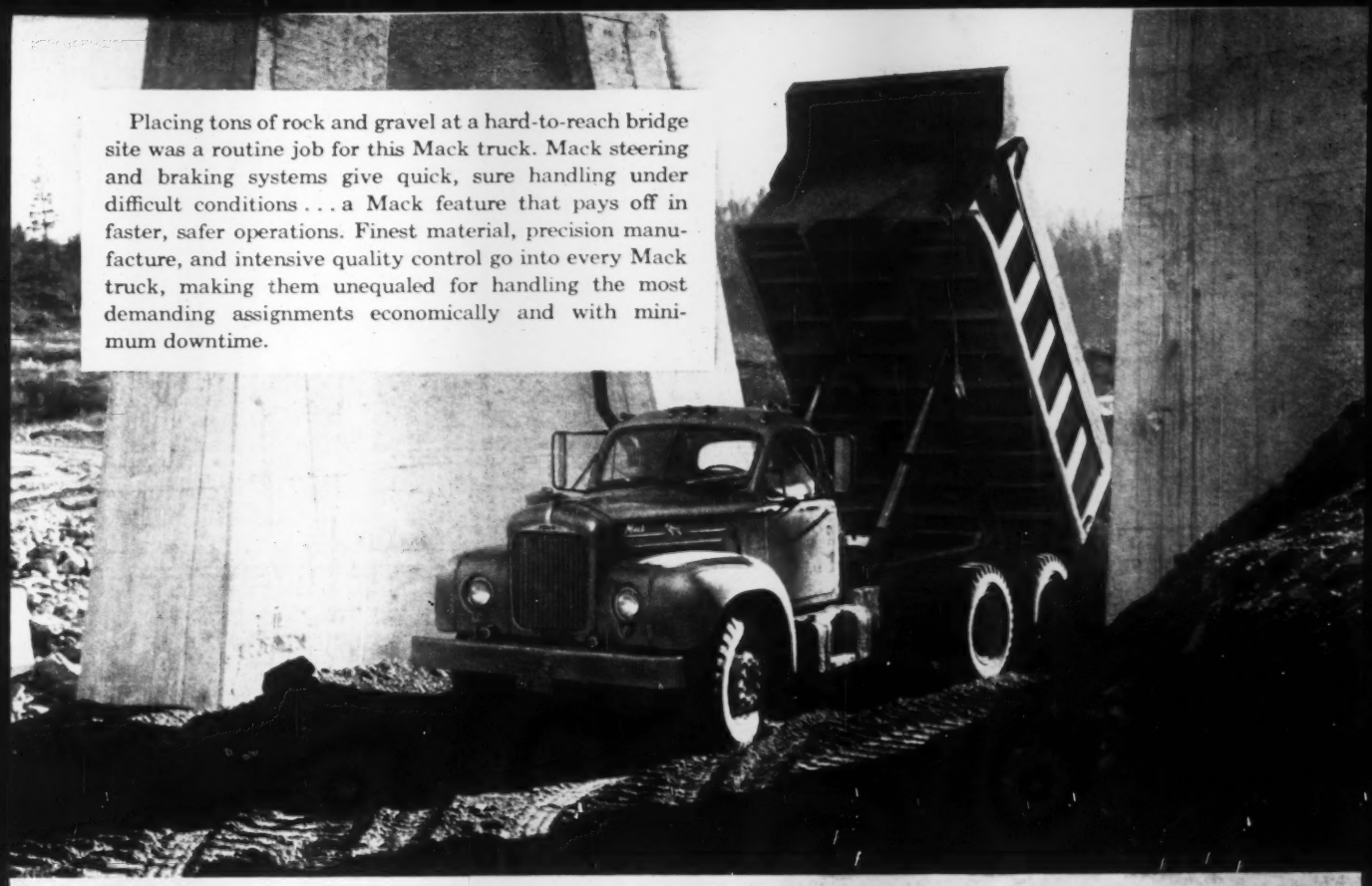
In diesel truck sales for the sixth straight year . . . it's MACK . . . nearly two to one!

To complete a road paving job before winter closed in, this Mack truck worked around-the-clock hauling big loads of gravel from crusher to dump site. Dependable, trouble-free performance like this is expected of Mack trucks. And Macks live up to expectations because they are built with superior components that give superior performance. Typical is Mack's exclusive Balanced Bogie with Power Divider that assures maximum flexibility, minimum tire wear, uniform braking and positive traction over any terrain.



MACK



Placing tons of rock and gravel at a hard-to-reach bridge site was a routine job for this Mack truck. Mack steering and braking systems give quick, sure handling under difficult conditions . . . a Mack feature that pays off in faster, safer operations. Finest material, precision manufacture, and intensive quality control go into every Mack truck, making them unequaled for handling the most demanding assignments economically and with minimum downtime.

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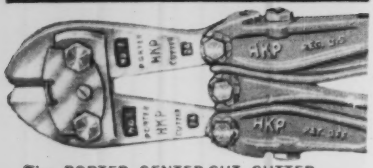

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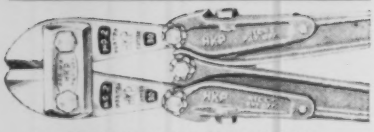

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Somerville 43, Mass.

(Continued from page 81)

BUILDINGS—LB & CA

▲ J. W. Bateson ... $10,783,900 ... 12-59-22 ... CD 4-3 ... under LB

▲ Kloster Co. ... $1,859,000 ... 11 bidders ... Apr. 1 ... CD 4-3 ... under LB

▲ Clarence E. Vollmer Constr. Co., Inc. ... $1,500,000 ... general ... CD 4-28

▲ Walter E. Wirtz ... $1,202,107 ... Northwest HOSPITAL addn. ... CD 4-24 ... under LB

▲ Frank Messer ... CD 4-15

Stanley Constr. Co. ... $728,000 ... CD 4-24 ... under LB

▲ Swigert Constr. Co. ... $1,454,658 ... general ... CD 4-15 ... under LB

▲ Hensel Phelps Co. ... $1,348,650 ... CD 4-15

▲ Farnsworth & Chambers Co., Inc. ... $2,895,000 ... CD 4-15

FAR WEST

HEAVY CONSTRUCTION—BA

▲† Wash., Spokane ...

HEAVY CONSTRUCTION—LB & CA

▲ UTAH ...

Gibbons & Reed Co. ... $1,452,948 ...

UTAH ...

Jack P. Parsen Constr. Co. ... $853,983 ...

▲ CALIFORNIA ...

Gordon H. Ball & Gordon H. Ball, Inc. ... $1,010,235 ...

▲ Fredericksen & Kasler ... $1,956,117 ...

▲† Kirst Constr. Co. ... $2,416,505 ...

▲ George Dakovich ... $1,363,107 ...

BUILDINGS—LB & CA

† Manson-Otberg Co. ... $841,850 ... 17 bidders ...

▲ Coordinated Constr., Inc. ...

Irwin H. Harris ... $879,200 ...

▲ Permanente Cement Co. ... $12,000,000 ...

CANADA

HEAVY CONSTRUCTION—BA

Que., Varennes ...

BUILDINGS—BA

▲ Que., Montreal ...

LATIN AMERICA

BUILDINGS—BA

▲ Costa Rica, San Jose ...

AMERICANS ABROAD

BUILDINGS—LB & CA

Westinghouse Electric International Co. ...

PROPOSED PROJECTS

WATER SUPPLY

▲ Calif., Santa Ynez ... $3,921,420

SEWERS, WASTE DISPOSAL

▲ N. Y., Roslyn (Town of North Hempstead, Manhasset) ... $3,600,000 bonds ... CD 3-23

▲ O., Elyria ... $1,700,000

▲ O., Solon ... $528,350 ... $960,000 ...

▲ S. C., Charleston ... $1,500,000

▲ Wis., Menasha ... $1,000,000

STREETS AND ROADS

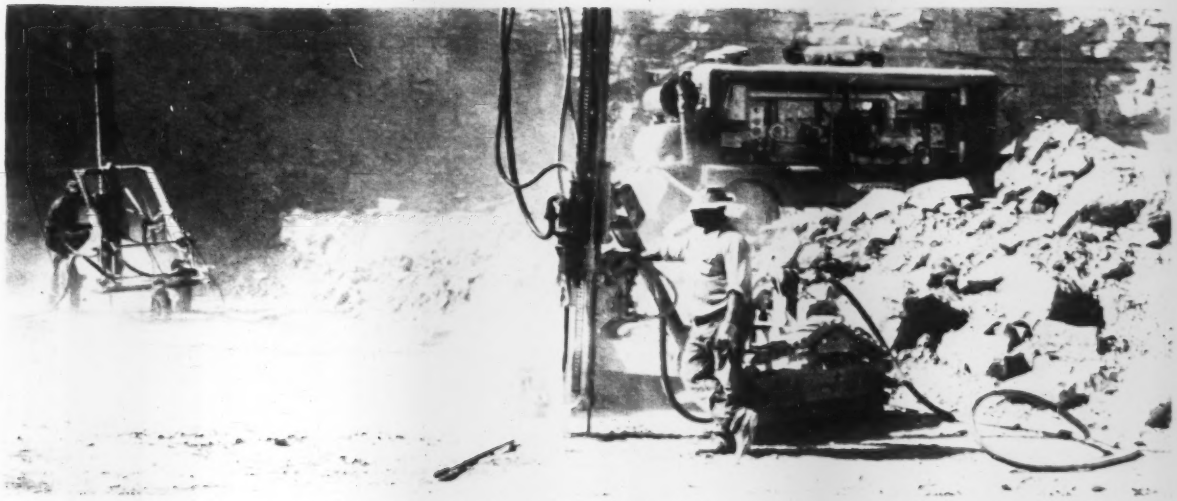
▲ Md., Baltimore ... $4,000,000 ...

▲ O., Cincinnati ... $1,600,000 ...

EARTHWORK, WATERWAYS

▲ Calif., Redondo Beach ... City Hall, voted $9,000,000 bonds Apr. 14, harbor improv. ... CD 2-13

(Continued on page 86)



11" PER MINUTE PER DRILL, IN LIMESTONE LEDGE: Constant full pressure produces maximum footage with this Thor self-propelled "Rocket" rig and BW-2 wagon drill. "Our Jaeger '600' rpm's less, and its 100 psi easily operates the two drills without lag," says owner.

UP TO 140 LICKS A MINUTE with Jaeger "600" behind a McKiernan-Terry 9B-3 four-ton double acting hammer. The operation is setting piles and steel for cofferdams on reinforced concrete bridge project.

ON PIPE TUNNELING WORK, auger deflection caused by fluctuating air pressure formerly necessitated 2 to 3 drillings per hole. With the constant pressure of a Jaeger rotary, one drilling is now enough.

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Owners of Jaeger rotary compressors uniformly note their lower cost of operation compared with other makes. In 8 hours' steady operation a Jaeger "600", for example, averages 48,000 fewer revolutions than any of five other compressors which use the same GM 6-71 diesel engine (1700 rpm full load speed compared with 1800 rpm). Output exceeds 500 cu. ft. of air per pound of diesel fuel.

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(Continued from page 84)

▲† Tennessee—U. S. Soil Conservation Service, Dpt. Agriculture, U. S. Courthouse, Nashville, Zone 13, drainage and watershed protection and flood prevention work, 168,000 acre Lick Creek Watershed, Johnson City, Washington Co. $4,500,000.

AIRPORTS

▲† Calif., Travis Air Force Base—BOMARC FACILITY—U. S. Eng., 1209 8th St., Sacramento, plans by Indenco Engineers, Inc., archt.-consult. engr., 2960 Merced St., San Leandro, BOMARC facility, $7,500,000.

▲† N. D., Grand Forks—HOSPITAL—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., plans by Ellerbe & Co., 333 Sibley St., St. Paul, Minn., air force hospital $1,500,000. Constr. 1959. CD 9-9.

▲ S. C., Greer—RUNWAY, etc.—Greenville and Spartanburg Counties, c/o Airport Directors, Spartanburg, runway, shops, hangars, $5,500,000. Skidmore, Owings & Merrill, 425 Park Ave., New York, N. Y., archts.; Piedmont Eng. Service, E. North St., Greenville, consult. engrs.

PUBLIC BUILDINGS

▲ Ark., Arkadelphia—DORMITORIES—Henderson State Teachers College, plans by Wittenberg, Delaney & Davidson, 402 Pyramid Bldg., Little Rock, men's dormitory (for 152), women's dormitory (for 152) (Ark. 3-CH-370) $1,136,000. CD 12/3/52.

Calif., Fremont—SCHOOL—Niles School Dist., 923-2nd St., $300,000. Bond election May 19, school, $900,000.

▲ Calif., Los Angeles—ADMINISTRATIVE CENTER—Bd. Supervs., Los Angeles Co., 501 Hall of Records, plans by Brog Freeman, 45 S. Morengo St., Pasadena, Zone 1, administrative center, Antelope Valley, Sched. 2, incl. health bldg., courts and office, county engineers, regional office, garages, Spec. 1902 and 1958, Lancaster, $1,504,408.

▲ Calif., Newman—SCHOOL—Orestimba Union High School Dist., 1327 Kern St., plans by Donald Francis Haines, 86 3rd St., San Francisco, 1st increment high school, Orestimba, $1,250,000. CD 4-2-57.

▲ Calif., Santa Cruz—SCHOOL—Santa Cruz City High School, 133 Mission St., bond election June 2, Mid-County High School, $2,300,000. John Lyon Reid & Partners, 1019 Market St., San Francisco, archts. CD 5-22.

▲ Calif., Whittier—SCHOOLS—Whittier Union High School Dist., $7,000,000 bond election May 19, schools.

▲ Colo., Fort Collins—STUDENT HOUSES—State Planning Division, State Capitol Bldg., Denver, plans by Jarvis S. Hunter, 1126 Spruce, Boulder, 1 and 2 story, 150 units, integrated student housing, Colorado State University, $1,300,000; mens dormitory alteration at Colorado State University, $1,450,000.

▲ Conn., Manchester—SCHOOL—Town, Town Hall, plans by Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, North End Junior High School, off East Middle Tpk., $1,000,000. Jerome F. Mueller, 15 Lewis St., Hartford, consult. engr.; A. John Macchi, 44 Gillett St., Hartford, structural engr.; Buck & Buck, 650 Main St., Hartford, drainage engrs. CD 2-13-57.

▲ Fla., Miami—COURT—Dade Co., plans by Costa Assocs., Roper Bldg., criminal court bldg., $5,000,000. Bliss Engineering Co., Inc., 1370 Washington Ave., Miami Beach, consult. engr.

▲ Ill., Evanston—SCHOOLS—School Dist. 65, voted $2,200,000 bonds Apr. 11, expanding schools. CD 3-22.

▲ Ill., Chicago—SCHOOL—Bd. Educ., 228 N. LaSalle St., plans by Stanley D. Anderson & Assocs., 270 E. Deerpath St., Lake Forest, 2 story, brick Arnold Elementary School, 718 W. Armitage Ave., $1,060,000; 2 story, brick Carver Branch Elementary School, 130 and St. Lawrence Sts., $400,000; Lewis-Champion Elementary School addn., 920 W. Englewood, $500,000. CD 6-11-57; plans by Figard, Burt, Wilkinson & Orth, 520 N. Michigan Ave., 2 story, brick Lasalle Elementary School, 526 W. Eugenie St., $630,000. CD 2-4.

Ind., East Gary—SCHOOL—School Town of East Gary, 2245 Park Ave., plans by Wildermuth & Wildermuth, 527 Broadway, Gary, 1 story, 63,000 sq. ft., brick high school addn., gymnasium, Park Ave., $900,000. CD 12-11-56.

▲ Ind., Warsaw—SCHOOL—Joint Warsaw City-Twp. Bd. Edu., high school on 20-acre site south of here, $2,800,000.

▲ Kan., Oswego—HOSPITAL—Labette Co., Court House, voted $865,000 bonds, county hospital, 21st St. Road, $1,700,000. Hewitt & Royer, archts., 607 Westport Rd., Kansas City, Mo., making survey. CD 11-14-56; under Kan. Projects.

▲ La., West Monroe—HOSPITAL—City plans by Buford Jacks, First Natl. Bank hospital, northeast corner Thomas St. and McMillan Rd., $2,000,000. William Wiener-Mercier & O'Neal, Commercial Natl. Bank Bldg., Shreveport, consult. engrs.

▲ Me., Portland—LABORATORY, etc.—University of Maine, 23 Brighton Ave., plans by Wadsworth & Boston, 57 Exchange St., classrooms, laboratory and library, $1,300,000. Bids in June.

▲ Md., Rockville—SCHOOL—Montgomery Co. Bd. Educ., plans by Johannes & Murray, 855 Pershing Dr., Silver Spring, Md., Springbrook High School, Silver Spring, $2,500,000. J. Gibson Wilson, Jr., 1426 N. N. W., Wash., D. C., consult. engr. CD 5-16-56.

▲ Minn., Anoka—SCHOOLS—Bd. Educ., voted $1,990,000 bonds Apr. 14, elementary school, $750,000,

Senior High School addn., $400,000. Tietz, King, Duvall, Anderson & Assocs., 1408 Pioneer Bldg., St. Paul, archts. CD 3-24.

▲ Minn., Edina (P.O. Minneapolis)—SCHOOLS—Bd. Educ., $4,000,000 bond election May 19, elementary school, $1,200,000; Senior High School addn., $2,800,000. CD 4-7-58.

▲ Miss., Jackson—SCHOOL—Bd. Trustees, Jackson Municipal Sep. School Dist., 662 S. President St., voted $5,800,000 bonds Apr. 17, schools.

▲ Miss., McComb—SCHOOLS—Bd. Trustees, McComb Separate School Dist., bond election May 19, schools, $1,000,000.

▲† N. H., Portsmouth—HOUSING—BA, Off. Of Asst. S. 27—Base Procurement Office, Pease Air Force Base, 483 units family housing, Pease Air Force Base, IFB 27-604-59-44, $7,000,000. Anderson-Nichols & Co., 150 Causeway St., Boston, Mass., and Samuel Glaser Assocs., 234 Clarendon St., Boston, Mass., archts.-engrs. CD 1-6.

▲ N. J., New Brunswick—APARTMENTS—Rutgers University, College Ave., plans by Warner, Burns, Toan & Lunde, 414 Madison Ave., New York, N. Y., fourteen 2-story, brick faced apartments for married students, Hoes Lane, $3,000,000. CD 4-8-58.

▲ N. J., Old Tappan—SCHOOL—Northern Valley Regional High School, 250 Knickerbocker Rd., Demarest, plans by F. Wiedersum Assocs., 65 Roosevelt Ave., Valley Stream, N. Y., second high school, $2,500,000.

▲† N. Y., Buffalo—PLANT—Curtiss-Wright Corp., Metal Processing Div., Grider St., $30,000, fire extension plant, Northland Ave. and Grider St., for the Air Force, $3,000,000. CD 8-22, under Industrial Buildings.

N. Y., Canandaigua—SCHOOL—Canandaigua Central School Dist., plans by Duane Lyman & Assocs., 505 Delaware Ave., Buffalo, N. Y., high school addn., $900,000. CD 3-24.

▲ N. Y., Dobbs Ferry—SCHOOL—Bd. Educ., voted $1,050,000 bonds Apr. 21, elementary school, Knappe & Johnson, 2 Overhill Rd., Scarsdale, archts. CD 10-21.

▲ N. Y., Niagara Falls—HOUSING—City Housing Auth., City Hall, (Second Unit) 100-unit housing, $2,000,000.

▲ N. Y., North Tonawanda—SCHOOL—Bd. Educ., 24th Goundry, 2 bond election May 19, Senior High School, $4,315,000. Pfohl, Stein & Roberts, 185 Niagara St., Buffalo, archts. CD 4-25.

▲ N. Y., Oneonta—SCHOOL, etc.—Bd. Educ., referendum on const., June 2, high school, library, $2,000,000. Warre H. Ashley, 726 No. Main St., West Hartford, Conn., archt.; Arthur G. Beaulieu Assoc., 2348 Whitney Ave., Hamden, Conn., consult. engrs.; Hubbard, Lawless & Bilkeley, 110 Whitney Ave., New Haven, Conn., mechanical engrs. CD 3-3.

▲ N. Y., Wyandanch—SCHOOL—Union Free School District No. 9, plans by Office of Louis E. Jallade, 597 Fifth Ave., New York, Zone 17, Junior-Senior High School, Garden City Ave., $1,800,000.

▲ O., Amelia—SCHOOL—West Clermont School Dist., plans by Cyrus Baxter & Assoc., Oak St., Mariemont, O., high school, addn. to elementary school, $2,000,000. CD 5-13.

▲ O., Cincinnati—CLASSROOMS, etc.—University of Cincinnati, Clinton Ave., plans by James E. Allan, 4307 Clifton Ave., 2 and 4 story, brick, concrete classrooms and physical education on Campus, $2,000,000. CD 4-14-58.

▲ O., Fairfield—SCHOOL—Bd. Educ., voted bonds Apr. 14, high school, $1,493,500. Winker, Ranck & Heights, Dollar Bldg., Hamilton, archts. CD 1-26.

▲ Pa., St. Petersburg—SCHOOL—Allegheny-Clarion Valley Jt. School Dist., high school, $1,700,000.

▲ Pa., Trafford—SCHOOL—Penn-Trafford Jt. School Dist., high school addn., $1,400,000.

▲ Tenn., Lebanon—HOMES—Lebanon Housing Auth., Lebanon, 78 low rent homes, $1,011,245.

▲ Tex., Houston—SCHOOL—Houston Ind. School Dist., 1,800 Capitol Ave., plans by Wertz, Calhoun, Tungate & Jackson, 2516 Richton St., San Jacinto Senior High School addn., $1,499,144. R. L. Reid, Inc. and Joe A. Poole, Inc., 2516 Richton St., consult. engrs. Bids in April. CD 10-25-58.

▲ Tex., McAllen—SCHOOL—McAllen Ind. School Dist., plans by Zeb Rike Assocs. & J. B. Hancock, 1101 Vine Ave., Elementary addn., Addns. No. 1, $475,000; high school addn., $425,000; school addns., Elementary No. 2 and addns., $350,000. CD 3-26.

▲ Tex., Waco—SCHOOLS—Waco Ind. School Dist., voted bonds Apr. 4, $4,050,000: High School, $1,700,000; Junior High School, $1,350,000; Elementary School No. 1, $750,000; Elementary School No. 2, $650,000; Elementary School No. 3, $950,000; Elementary School No. 4, $700,000. CD 3-31.

▲ Wash., Auburn—SCHOOL—Federal Way School Dist. No. 210, elec. on May 19, on spec. bonds, plans Sept. 29th, Senior High School, $1,100,000, and elementary school, Military Rd., $500,000. CD 12-15-58.

▲ Wash., Seattle—SCHOOL—Highline Public Schools Dist. No. 401, 243 Sq. Ft., $2,900,000 bond issue elect. May 19, high school, [illegible] $1,507,715. Wallgren & Dietz, 1211 [illegible] Ave., Seattle, archts. CD 12-8-58.

▲ Wash., Seattle—BUILDING—State Dept. of Revenue & Personnel, Dept. of General Services Bldg., [illegible] Thiry, Paine & Bassetti, 1215 4th St., Seattle, archts. CD 2-19-59, $3,500,000.

COMMERCIAL BUILDINGS

▲ Ala., Birmingham—STORE—Pizitz Department Store, 1-21 2 Ave. N., Lunsford, Ketchum & Sharp, 227 E. [illegible]

(Continued on page 90)

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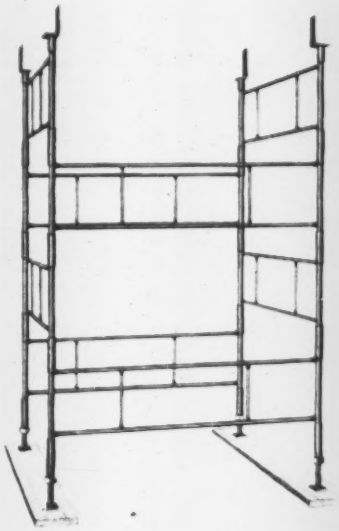
IT'S SPEEDY, SIMPLE, STURDY, SAFE



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Special notched frames that quickly slip-fit together are the key to this revolutionary new shoring system.

No nuts, bolts, pins or other fastening devices needed. *No tools are required.* Free standing towers of any height can be *erected in one-foot increments*, using combinations of 2 and 3 foot frames.

The simple, flexible Self-Lock System consists of three basic units; rugged, lightweight frames of welded steel tubing; ledger carriers and shoring jacks.

Self-Lock frames can also be planked and used as scaffolding during erection and dismantling of towers to eliminate the need for separate scaffolding. They stack compactly, transport easily—can be re-used on job after job.

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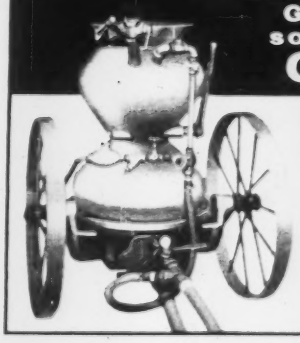

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To set new production records . .

More Power

With a 360 *horsepower turbocharged* engin
. . . the GM 6-110T . . . for ample power n
matter what the loading conditions, grades, o
traction. Also available are the 335-hp GM
6-110 and the Cummins NRTO-6-BI engines.

PLUS all these profit-proven LW "standards"

Fast-loading 28-yd *Fullpak*® scraper design, for better "boil", fewer voids, more pay-yards per load; *Power-Transfer differential*, to keep your machines working in softest going; *Electric controls*, fast-acting, easiest-to-operate, easiest of all control systems to maintain; Positive-powered *kingpin-steer*, for fast, easy maneuvering in tight quarters; *Interchangeability*, of scraper with Rear-Dumps, for top use of equipment dollars.

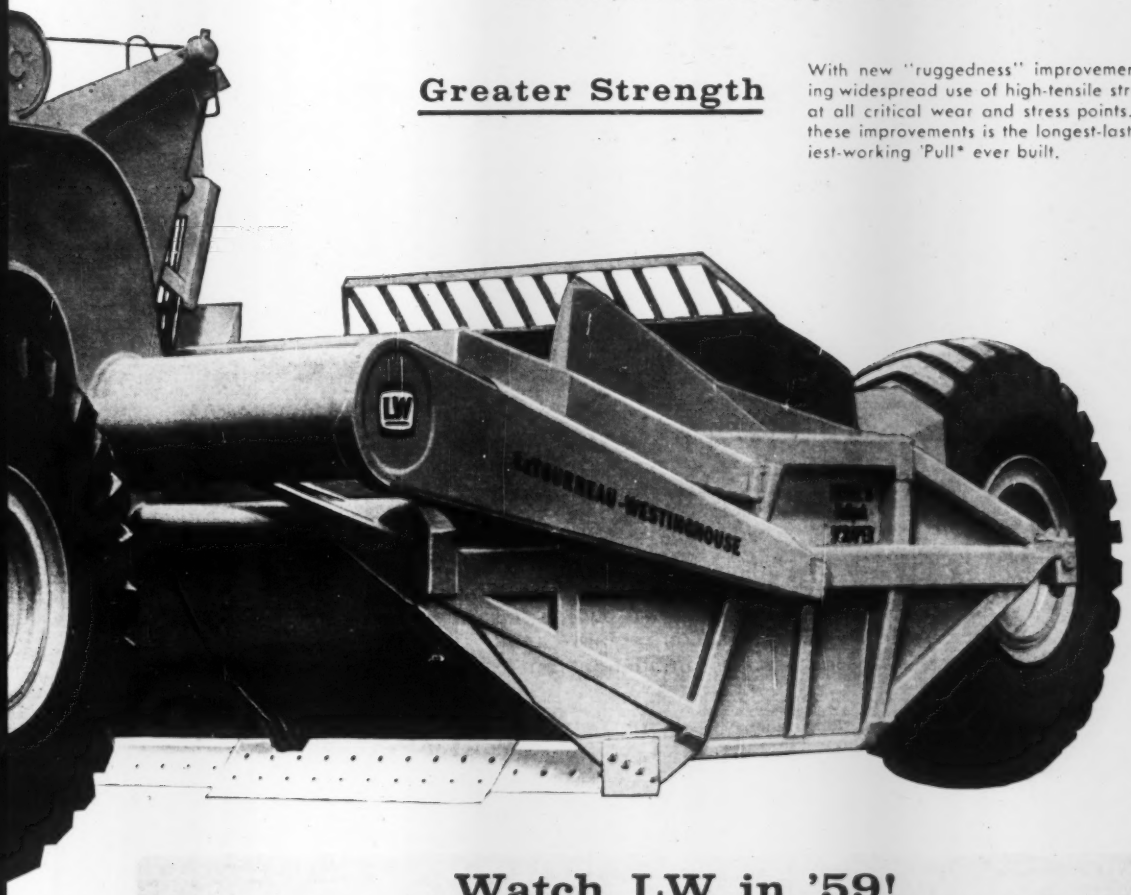
the New B Tournapull® now offers you

A New Transmission

Pressure-lubricated Fuller L-1550, developed especially for the 360-hp "B". A heavy-duty transmission with power-shift range box providing 10 forward speeds (to 30.2 mph), and 2 reverse. For torque-converter action, choose the "B" with Allison Torqmatic transmission. 335-hp "B" available with either Allison Torqmatic or L-1520 step-gear transmission.

Greater Strength

With new "ruggedness" improvements, including widespread use of high-tensile strength steel at all critical wear and stress points. Result of these improvements is the longest-lasting, steadiest-working 'Pull' ever built.



Watch LW in '59!

This announcement of the new B Tournapull follows, by only a few weeks, the unveiling of the new LW line of "full-sweep visibility" motor graders. Both developments are part of the LeTourneau-Westinghouse Parade of Progress . . . a program of design, engineering, and manufacturing know-how that is giving you the biggest-producing, lowest-cost-to-operate earth-moving machines in history.

Join the parade! . . . Ask your LW Distributor for full details. Tell him you'd like to see a demonstration.

*Trademark BP-2133-DC-2

LW

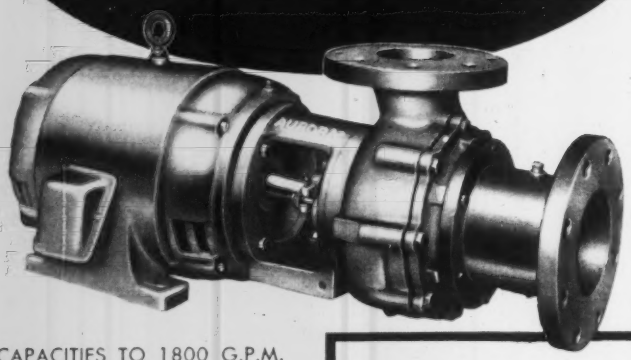
LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Minimize Liquid Handling Costs

with CONTROLLED PERFORMANCE AURORA® END-SUCTION CENTRIFUGAL PUMPS



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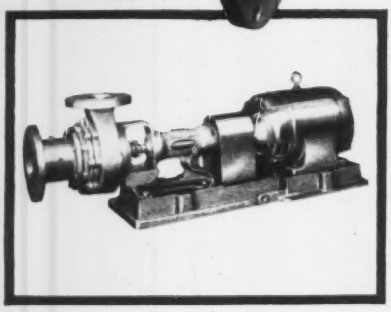

Transfer, circulation, or pressure boosting of liquids—hot or cold—can be accomplished with the highest efficiency when you select AURORA End-Suction Centrifugal Pumps. Since less power is needed to provide required delivery, the initial cost is much lower and the operating cost less. Compactness and simplicity of design saves space and makes installation faster and easier.

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THE NEW YORK AIR BRAKE COMPANY
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(Continued from page 87)

44 St., New York, N. Y. and Lawrence Whittel, Brown-Marx Bldg., Birmingham; expand, remodel dept. store addn., $1,000,000.

▲ Calif., Hayward—SHOPPING CENTER—Owner, c/o Lloyd Gartner, archt., 821 Market St., San Francisco; Lagramja Shopping Center, near here, $2,500,000.

▲ Colo., Wheatridge—SANATORIUM—Lineman Sanatorium, 9300 W. 38 Ave., sanatorium, expansion, $1,500,000. Ross Garrett & Assocs., 3240 W. Lake Shore, Chicago, Ill., hospital consultants.

▲ Conn., Cheshire—SEMINARY—Missionaries of Our Lady of LaSalette, 200 Mountain Ave., Bloomfield, plans by Sebastian J. Passinesi, 161 Court St., Middletown, 135,000 sq. ft. preparatory seminary, Oak Ave., $1,400,000. Bids in 1959. Fred S. Dubin Assocs., 178 S. Whitney St., Hartford, consult. engrs. CD 1-29.

▲ D. C., Wash.—OFFICE—National Geographic Society, 16 and M Sts., N.W., plans by Faulkner, Kingsbury & Stenhouse, Ring Bldg., 1 story office bldg., headquarters, 16 and M Sts., N.W., $3,000,000.

▲ Fla., St. Petersburg—COLLEGE—Florida Presbyterian College, Maritime Base, plans by Connell-Pierce-Garland & Friedman, 315 N. W. 27 Ave., Miami, Zone 32, Perkins & Wills, 309 W. Jackson St., Chicago, Ill., and Jefferson M. Hamilton, 113 N. 7 St., Gainesville, college, incl. classroom bldgs., dormitories, chapel, admin. bldg., etc., Highway 19, north of Sunshine Skyway, $5,000,000.

▲ Ill., Highland Park—HOSPITAL—Highland Park Hospital, 718 Glenview Ave., plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, 3 story, 27,000 sq. ft., brick concrete hospital, $1,470,000.

▲ Ind., Indianapolis—SHOPPING CENTER—Southern Plaza Shopping Center, c/o Albert D. Frankel, Merchants Bank Bldg., plans by C. Wilbur Foster & Assocs., engrs.-archts., 4741 E. Washington, shopping center, I. S. 31 and Hanna St., $2,500,000, Constr. this summer.

▲ Ind., Indianapolis—MOTEL—Speedway Motel-Hotel, Inc., c/o R. Bruce Sims, 4326 N. Parker, motel, Lines A, 1n St., $1,000,000.

▲ Ky., Louisville—APARTMENT—Martin Adams & Sons, Grinstead Ave., plans by Norman Sweet, Republic Bldg., 7 story, 60 apartment house, incl. 140-car garage, Lexington Rd. and Story Ave., $1,500,000.

▲ Md., Oxon Hill—APARTMENTS, etc.—All-State Properties, Inc. (Herbert Sadkin, pres.), 30 Verbena Ave., Floral Park, N. Y., 110 homes, apartments, commercial bldgs., 420 acres, zone bordered by Livingston Rd., $50,000,000.

▲ Md., Wheaton—SHOPPING CENTER—Wheaton Plaza Regional Shopping Center, 11160 Viers Mill Rd., regional shopping center, $5,000,000. General Engineering Co. Assocs., 813 14th St., N. W., Wash., D. C., consult. engrs.

▲ Mass., Hyannis—HOSPITAL—Cape Cod Hospital, 27 Park St., plans by E. Todd Wheeler & Perkins & Will, Inc., 309 W. Jackson St., Chicago, Ill., hospital addn., $1,600,000. Constr. 1959. CD 11-17.

▲ N. J., Clifton—APARTMENTS—Manor Homes, Inc., 1290 Broad St., Bloomfield, plans by M. E. Lingenfelder, 26 Court St., Brooklyn, N. Y., four 14 and 12 story apartments, Heppburn Rd., $4,500,000.

▲ N. J., Spotswood—CHURCH, etc.—Diocese of Trenton and Parish of Immaculate Conception, Manalapan Rd., church and school, Manalapan Rd., $1,000,000. Bids in. Mgr. Edward J. McCarthy, 810 Arlington Ave., Plainfield, archt. CD 5-5-58.

▲ N. Y., East Greenbush—SHOPPING PLAZA—Walter Hohler, c/o Wilson A. Sturgeon, Medina, shopping plaza, Columbia Turnpike, $1,300,000.

▲ N. Y., East Williston—CHURCH—Diocese of Brooklyn, 191 Joralemon St., Brooklyn, Zone 1, plans by John O'Malley, 1 DeKalb Ave., Brooklyn, Zone 1, St. Aidan's Church and Convent addns., $1,000,000. V. J. Falotico & Assocs., 26 Court St., Brooklyn, Zone 2, consult. engrs.

▲ N. Y., New York—OFFICE, Guardian Life Insurance Co., 50 Union Sq., plans by Skidmore, Owings & Merrill, 326 Park Ave., 4 story home office bldg., addn., NEC 3 Ave. and 27 St., $1,000,000.

▲ N. Y., New York—APARTMENT, 431 East 68th St., plans by Emery Roth, 200 Park Ave., 14 story, 132 ft. 12 in. by 72 ft. 8 in., apartment, 431-49 East 68th St., $2,500,000.

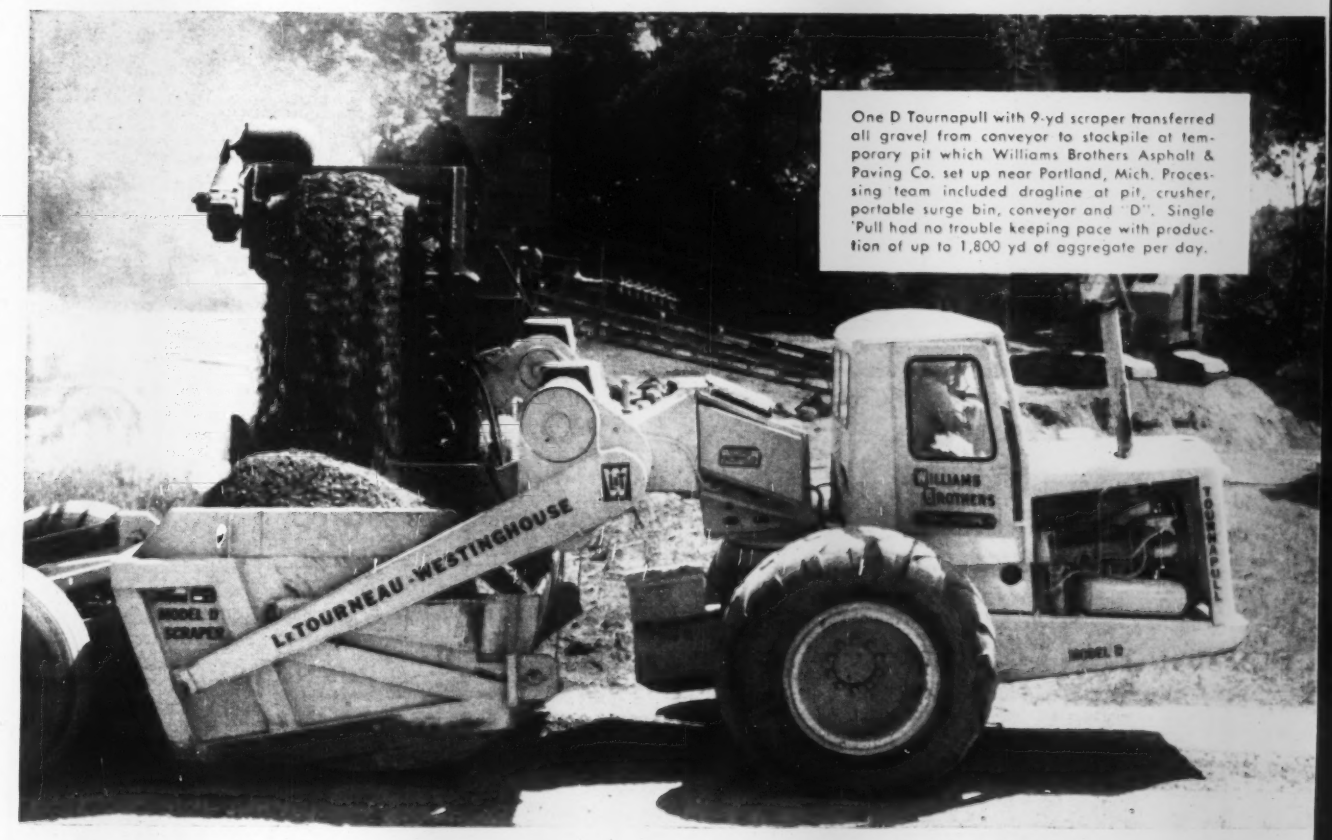
▲ N. Y., New York—APARTMENT, Manhattan, 505 Park Ave., Zone 22, plans by Wechsler & Schimenti, 118 E. 28th St., Zone 16, 20 story, 1962-63, 2nd Ave. and E. 84th St., $1,000,000.

▲ N. Y., Syracuse—OFFICE, etc.—Air Force Association, c/o Wm. H. Ruttenberg, 207 Greenfield Ave., Pittsburgh, Pa., headquarters, Northern Lights Project, $1,250,000. Defense Systems Dept. of General Electric, owner.

▲ N. Y., Troy—SEMINARY, Passionist Monastery of Immaculate Conception, Vandenburg Ave., plans by Emery Roth, 200 Park Ave., 4 story, 60 cell, 2nd unit of seminary, $1,000,000.

▲ N. Y., Troy—LABORATORY—Rensselaer Polytechnic Institute, Jordan Rd., plans by Henry Warren, Sykes, Smith & Hutton, 111 Park Ave., New York, Zone 17, laboratory, 5 story, pentagon, Units 1, 2 and 3, 12 in. x 12 in. x 12 in. x

How one conveyor-loaded D 'Pull* scraper outhauled three trucks!



One D Tournapull with 9-yd scraper transferred all gravel from conveyor to stockpile at temporary pit which Williams Brothers Asphalt & Paving Co. set up near Portland, Mich. Processing team included dragline at pit, crusher, portable surge bin, conveyor and "D". Single 'Pull had no trouble keeping pace with production of up to 1,800 yd of aggregate per day.

Standard procedure in hauling aggregate loaded from a conveyor belt *usually* calls for the use of trucks. But a Michigan supplier of roadbuilding materials, Williams Brothers, Ionia, didn't go by the book when it produced aggregate recently for construction on U. S. 16, near Portland, Mich. For hauling — the firm used *one* 9-yd LeTourneau-Westinghouse D Tournapull* *scraper* on what was estimated as a 3-truck operation.

Some of the advantages in using one machine, rather than three, were obvious, including the savings on fuel, maintenance, service, and man-hours for 2 extra units. But, according to Robin J. Williams, one of 3 brothers who own the firm, there are other important bonus benefits. First, the "D" maneuvers far better than trucks; it's much easier to spot for loading. In travel, the L-W machine can make fast U-turns in less than its own 28'1" length.

Easy target for loading

Next, the square, low-set scraper bowl of the 'Pull proved to be an easier loading target than the bodies of average trucks. And third, the "D" scraper was able to spread on the run in thin, steady lifts, which regular trucks and haulers can't match. This is important in businesses like Williams Brothers, where a thin spread guarantees a thorough mix. This "thin-spread" ability gave another bonus because it eliminated the need for a dozer on the stockpile to mix the material.

See versatility demonstrated

Want to see *proof* of "D" performance — either as a hauler, or in "cut-and-carry" earthmoving? Ask for a demonstration at a time and place of your choice, against any competitor you name. There's no obligation.

*Trademark DP-1996-DCJ-1

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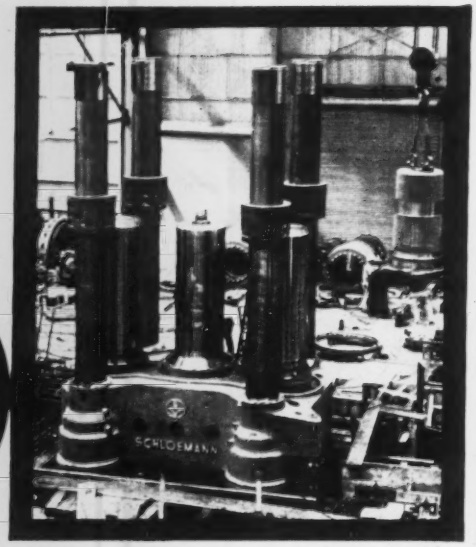

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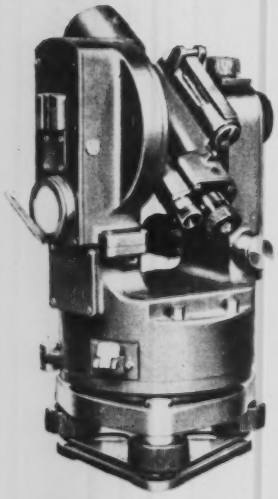

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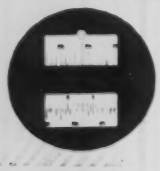

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(Continued from page 90)

▲ Pa., Bethel—SANCTUARY, etc.—Christ Methodist Church, Highland Rd., Bethel; sanctuary and administration and education wing addns., $1,300,000.

▲ Pa., Pittsburgh—LIBRARY—Carnegie Institute of Technology, Schenley Park, Pittsburgh, Zone 13; plans Eyo-Lawrie & Green, 321 N. Front St., Harrisburg; library bldg., $2,800,000. Gutter & Diehl, 1617 N. Front St., Harrisburg, consult. engrs. CD 11-4.

▲ Pa., Pittsburgh—STUDENT ACTIVITIES—Carnegie Institute of Technology, Schenley Park, Pittsburgh, Zone 13; plans by Lawrie & Green, 321 N. Front St., Harrisburg; campus activities center, $2,200,000. Gutter & Diehl, 1617 N. Front St., Harrisburg, consult. engrs. Bids late in June. CD 2-26-57.

▲ Tex., El Paso—HOTEL, T. Jack Foster & Sons, 4777 E. 31 St., Tulsa, Okla., 400 unit motor hotel, $4,000,000; water svc., $60,000; hard-type paving, $90,000; earth site work, $58,000; sanitary sewer lines, $110,000; 39 acre site Carlsbad Hy. at International Airport.

▲ Tex., Fort Worth—BANK, etc.—First National Bank, 711 Houston St.; plans by Skidmore, Owings & Merrill, 425 Park Ave., New York, N. Y., and Preston M. Geren, 1607 Forth Worth National Bldg., Forth Worth; 18 story masonry fireproof bank and office with 7th and Lamar Sts., $11,000,000. CD 9-20-57.

▲ Tex., San Antonio—HOTEL—San Pedro Loop Properties, 1500 S. Zarzamora St.; plans by Hedrick & Stanley, T&P Bldg., Fort Worth; 250 unit motor hotel; Ramada Inns, lessee; $2,250,000; area and 325 parking center paving, $90,000; water lines, $55,000; site earthwork, $60,000; 45 acre tract, San Pedro Ave. and Loop 13.

▲ Wash., Seattle—APARTMENT—A. J. Mullally, 3109 Avalon Way; plans by G. Balotin & Assocs., 915 E. Pine St.; 10 story reinforced concrete apartment, 1200 Boylston Ave., $1,000,000.

▲ Wash., Seattle—SHOPPING CENTER—Reiss, Inc., c/o C. E. Loveless, RFD 9, Lacey; plans by S. W. May, Alaska Trade Bldg.; shopping center, N. 185 St. and Aurora Ave., $1,500,000. Work to start this summer.

INDUSTRIAL BUILDINGS

▲ Conn., Norwalk—PLANT, United Aircraft Corp., Norden Div., 400 Main St., East Hartford; 300,000 sq. ft. research plant, $6,000,000.

▲ Ill., Rockton—PLANT, Beloit Iron Works, 1 St. Lawrence Ave., Beloit, Wis. (mailing); iron works plant addn., Ill. Highway 2, $1,000,000.

▲ Minn., St. Paul—PLANT, Dorex of Minnesota, Inc., 413 Pioneer Bldg.; plans by Griffinder, Nagle & Assocs., Sexton Bldg., Minneapolis; cellular gas concrete bldg. products plant, 5 mi. east of here near Highway 12 on Lake Elmo Rd., $1,000,000. Bettenburg, Townsend, Stolte & Comp., 1447 Marshall Ave., consult. engrs. CD 1-29.

▲ N. J., Holmdel—LABORATORY, Bell Telephone Laboratories, 463 West St., New York, N. Y.; plans by Eero Saarinen & Assocs., W. Long Lake Rd., Bloomfield, Mich.; laboratory, $20,000,000. CD 4-22-57.

▲ N. J., Paulsboro—PLANT, Dixon Chemical Industries, Inc., 12th Broad St., Bloomfield; plant addn., Thomas Lane, $3,000,000. Singmaster & Breyer, 420 Lexington Ave., New York, N. Y., consult. engrs.

▲ O., Brunswick—INDUSTRIAL BLDGS., etc.—Clifton Concrete & Supply Co., 18030 Brookpark Rd., Cleveland, Zone 11; plans by Ward Conrad, Schneider & Szabo, Hanna Bldg., Cleveland, Zone 15; 40 to 50 industrial bldgs. and warehouse, northeast corner Pearl Rd. and Ravel Rd. Rd., $5,000,000.

▲ Pa., Phila.—WAREHOUSE, Robert J. Bennett, c/o Lew-Greenfield, 2311 Penna. Ave., warehouse, Roosevelt Blvd., $4,000,000.

▲ Utah, Beaver—PLANT, American Potash & Chemical, [illegible], $1,500,000.

UNCLASSIFIED

▲ Ala., Tuscaloosa—STADIUM, [illegible] of Alabama, [illegible], $2,000,000.

Conn., East Norwalk—MARINA, City of Norwalk, City Hall, [illegible], $978,000. Cahill & Dyke, 1213 Kings Ave., Norwalk, consult. engrs. CD 9-18.

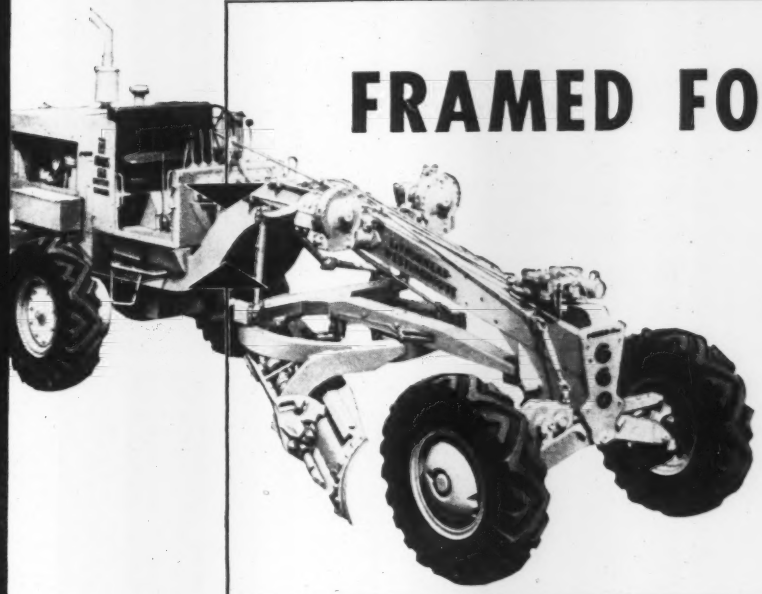
▲ Florida—GAS LINES, [illegible], Dade and Broward counties, $5,000,000.

▲ Florida—TRANSMISSION SYSTEMS, Florida Power & Light Co., 25 S. E. 2 Ave., Miami; [illegible], $11,000,000. [illegible], $34,000,000.

Ga., Tifton—GAS DISTR. SYS., [illegible], $950,000.

Mississippi—SYSTEM EXTENSIONS, Gulf States Utilities Co., Beaumont, Texas; [illegible] extensions, improvements; 82 mi. 69 kv transmission line; 63 mi. conversion to 69 kv; increase power input at 3 substations, $938,000. CD 10-20-58.

▲ O., Cincinnati—BASEBALL STADIUM, [illegible] Committee, Inc., c/o John Lloyd, Union Central Bldg.; plans by Osborn Eng. Co., architects, 7016 Euclid Ave., Cleveland; baseball stadium, $8,000,000.



FRAMED FOR LONG LIFE

...to give you top performance ...dependability

A strong, stable blade-foundation is essential if a grader is to give you high output. That's why LeTourneau-Westinghouse Adams* graders are given rugged, solid-strength, one-piece frames... that take all of the shocks, twists, and stresses of hardest day-to-day operating conditions.

Continuous-welded... front to rear

Front-to-rear members of the L-W main frame are heavy steel U-channels. Up front, two full-length channels are welded together to form a box section. Channels separate at top of arch and become two boxes by addition of two heavy-steel plates. Frame is continuous-welded from front bolster plate to boxed-in rear-end.

One major advantage of this boxed-channel framing is that it provides *maximum strength without excessive weight.* Result: with the L-W grader, more weight and strength can be built into important components, such as the big 63" L-W circle... none bigger in the industry... where size and strength mean better performance.

Steady blade-mount

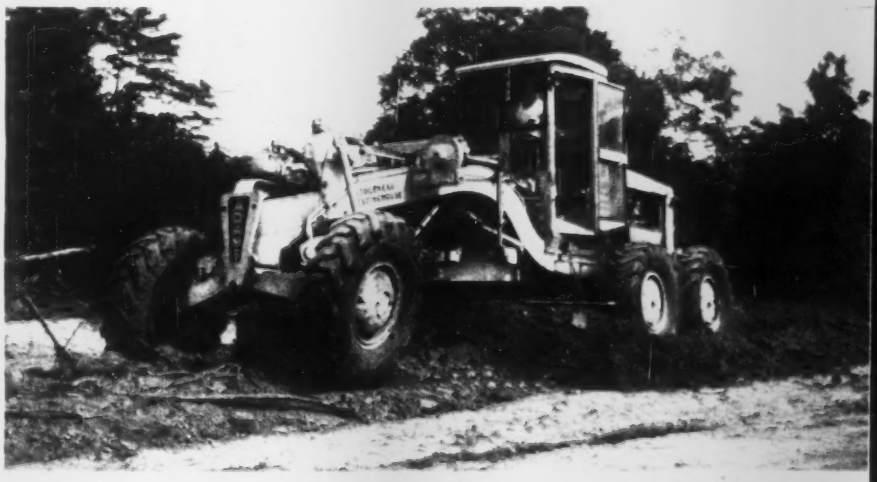
This unique L-W main frame also provides a stable mount for the blade. No matter how tough the going, its solid strength assures a big bite... a smooth, precise finish-surface. No faltering when the blade hits heavy loads or hard-pan... no "riding up", or deflection.

Operator has clear view of blade

With circle-lift controls mounted forward on frame, both ends of blade are clearly visible to operator, *whether he's sitting or standing.* Clear view of blade assures more accurate grading... and more work done each day.

7 models... 60 to 190 hp

Let us show you any of the 7 high-speed LeTourneau-Westinghouse graders in action. We'll prove to you how these machines can grade faster... more accurately... at less cost. Ask for details and demonstration.



Unique, box-type, L-W Adams one-piece frame runs from front to rear without sharp bends... without joints... without breaking points. Seventy-three years of grader experience have gone into the development of this frame. It's the foundation for L-W grader's rigid, smooth-cutting qualities that get more work done fast... at lowest cost.

*Trademark G-1955-G-1

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 12 Massachusetts May 13 Maine
May 18 Connecticut

HEAVY CONSTRUCTION—LB & CA

▲ VERMONT State Dpt. Hys., State House, Montpelier.

The Lane Constr. Corp., 965 East Main St., Meriden, Conn., CA $2,483,529, est. $2,500,000, highway and bridge, Dist. Rte. 91, Contr. I-89-2 (4) 1&2, Waterbury. Bids Apr. 17. CD 4-22, under LB and CA.

▲ CONNECTICUT State Hy. Comr., 170 Douglas St., Hartford.

White Oak Excavators, Inc., 41 East Main St., Plainville, Conn., CA $3,909,589, 31,795 lin. ft. concrete pavement, 6 bridge structures on Bradley Field Connector to Hartford-Springfield Expressway, and 2,450 lin. ft. concrete pavement on relocation of section of Rte. 20, Projects 1e(6)4 and 1e(4), East Granby, Windsor and Windsor Locks. Bids Mar. 2. CD 1-13, under LB.

BUILDINGS—LB & CA

▲† Anthony Grace & Son, Inc., 341 Sixth Rd., Angola, New York, LB $4,475,594, 7 buildings, 277 units, Lighthouse Hill Housing, Naval Air Station, NBy (HI 22078), FHA Proj. 022-81-015, BRUNSWICK, Me., Dist. P. Wks. Office, East Naval Dist., 495 Summer St., Boston, Mass. Bids Apr. 22. CD 4-17.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 13, 20 New Jersey

▲ N. Y., Buffalo, BA 5-21, City Hall, Zone 2, Bridge Superstructure, incl. steel and concrete and mechanical equip., Section 21 substructure and extension of utility tunnel, $5,000,000, Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York, consult. engrs. CD 12-N-52.

▲ New York and New Jersey, BA 5-2, Port of New York Authority, 111 Eighth Ave., New York, Zone 11, substructure and part superstructure, on New York (Staten Island) expansion of George Washington Bridge, Contr. GWB-140,036, Plans deposit $50, CD 8-15-57.

BUILDINGS—BA

▲† N. Y., Brookhaven, NUCLEAR ENGINEERING, BA 5-26, Atomic Energy Comm., Brookhaven Area, Upton, for work for constr. nuclear engineering bldg. at Brookhaven National Laboratory, Upton. Plans deposit $15, Seeley, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., archts.-engrs. CD 10-26-55.

BUILDINGS—SLC

▲ N. Y., Bethpage, LABORATORY, Grumman Aircraft Engineering Corp., S. Oyster Bay Rd., Bethpage, $300, lets contract. Avionics Engineering Laboratory, $4,000,000, Seeley, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., engrs. CD 12-17.

HEAVY CONSTRUCTION—LB & CA

▲ NEW YORK Dpt. P. Wks., State Office Bldg., Albany.

Hendrickson Bros., Inc., 61 N. Central Ave., Valley Stream, N. Y., CA $7,272,376, est. $8,327,000, 9.27 mi. section four-lane divided Heckscher State Parkway and 4.4 mi. access roads, north of Sunrise Hy., Rte. 27, to Heckscher State Park, east of Bay Shore to Montauk Hy., HSP-541, Contr. 1, Suffolk Co. Bids Apr. 2. CD 4-6, under LB.

▲ NEW YORK State Dpt. P. Wks., State Office Bldg., Albany, Zone 1.

Tufano Contg. Corp., 32-17 Lawrence, Flushing, N. Y., CA $6,554,951, est. $6,924,500, 8 cont., 9.11 mi., Southern State Park, Wellwood Avenue to Babylon Rd., Contr. SSPRR-64.1, Suffolk Co.

Weber Constr. Co., Inc., 133 Wall, Schenectady, N. Y., CA $1,188,047, est. $1,152,000, 5 cont., 6.9 mi. Thruway, Pembroke-Batavia, Contr. 3726, Erie, Genesee, Orleans, Niagara Counties. SH 7501, East Springfield-Cherry Valley, SH 434, Cherry Valley-Sharon Springs-Canajoharie, Spl. Canajoharie Pt. 1, SH 8064, Cherry Valley-Sprout Brook Pt. 1A, Rte. 166, Contr. FARC 59-23, FASH 58-6, Proj. F 165 (1), Otsego Co.

N. Y., Louis Mayersohn, Inc., 16 State St., Albany, N. Y., CA $1,572,106, est. $1,764,000, 8 cont., 9.16 mi. Long Lake Grove, SH 848, Newcomb-Long Lake Pt. 2, SH 5181, Newcomb-Long Lake Pt. 1, SH 5168, Rte. 28N, Contr. FARC 59-15, Proj. 5-210-21, Hamilton and Essex Counties.

N. Y., John Arborio, Inc., W. Cedar St., Poughkeepsie, N. Y., CA $1,742,539, est. $2,124,000, 8 cont., 4.27 mi. Thruway, Pembroke-Batavia, Contr. 58-41, Rte. 98, FARC 59-17, Ulster Co.

N. Y., Hornell Constr. Corp., 212 Main St., Hornell, N. Y., CA $1,182,912, est. $1,307,000, 8 cont., 2.26 mi. Hornell-Canisteo, SH 5212, Canisteo-Arkport, SH 5348, Canisteo-Whitesville, Rte. 1, SH 5537, Rte. 36, & 248, FARC 59-11, Steuben Co., grand total $1,230,565. Bids Mar. 12, awarded Apr. 4. CD 3-27, under LB.

▲ NEW YORK State Dpt. P. Wks., State Office Bldg., Albany. Bids opened Apr. 10.

Guil Contracting Company, 33-35 Lawrence St., Flushing, N. Y., LB $5,443,487.00, est. $7,031,000, (11 bidders), 6 conc., 2.71 mi., 5.04 mi. access, incl. 6 by separation compressed steel girder, 4 span 225 ft., 3 span 113.2 ft., 2 span 117.5 ft., 3 span 168.8 ft., 2 span 166 ft. and 2 span 170 ft., Interstate Rte. connection 913, Cont. 3 (Cross Bronx Expressway and Throgs Neck Expressway), Rte. 495, FICBE 59-2, FITNE 59-1P, Proj. I-1112 (12), Bronx Co., CD 4-28.

▲ NEW YORK State Dpt. P. Wks., State Office Bldg., Albany.

Perini Corp., 73 Mountwait Ave., Framingham, Mass., CA $3,567,374, asphalt concrete, 3.63 mi., misc. work, incl. 2 precast prestressed concrete twin bridges, 2 welded plate girder railroad separations, Interstate Rte. 502, Section 7B-1, Plattsburgh-Keeseville, Pt. 1, SH 56, and access roads, Rte. 88, Proj. I-IG-111-2(7), Clinton Co. Bids Jan. 29, CD 2-6, under LB.

▲ NEW JERSEY State Hy. Dpt., 1035 Parkway Ave., Trenton.

Brann & Stuart Co., 110 Whitehead Rd., Trenton, N. J., CA $4,129,085, 2.23 mi., Rte. 40, Freeway, Camden and Gloucester Counties, Bid Item 24, awarded Apr. 28, CD 3-26.

BUILDINGS—LB & CA

▲ Joseph P. Blitz, Inc., 111 Madison Ave., New York, 22, N. Y., LB $7,587,000, 8 buildings, 1,000 units, Benjamin Franklin Houses, Proj. N. Y. 2-27, section II, E. 108th St., 1st Ave. & Pleasant Ave., Manhattan, Bids N.Y.C. Housing Auth., 250 Broadway, New York 7, N. Y., Bids Apr. 28, 3 P.M.

Herman H. Schwartz, Inc., CA, 1 Pilot and Avenue H, Brooklyn 17, N. Y., LB $508,470, 11 buildings, Pilot Cash work, for Benjamin Franklin Houses, New York, N. Y.

Sam Berley Heating Corp., 212 Division Ave., Brooklyn, N. Y., LB $620,000, 8 buildings, heating and ventilating, for Benjamin Franklin Houses, New York, N. Y.

C. K. Rebner, Inc., 1920 Southern Blvd., Westchester, N. Y., LB $970,000, 6 buildings, 12 Bath Junior Republic Houses, New York, N. Y.

▲ Turner Constr. Co., 1500 Walnut St., Phila., Pa., CA Est. $10,000,000, 360 unit APARTMENT, James and Lod Sts., SYRACUSE, N. Y., Date 04-09-59, 238

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these shares. The offering is made only by the Prospectus.

150,000 Shares

Lockwood, Kessler & Bartlett, Inc.

Class A Stock

($0.25 Par Value)

Of these shares 100,230 are authorized but unissued shares being sold by the Company and 49,770 shares are being sold by Selling Stockholders. The Company will receive no part of the proceeds from the sale of the shares by the Selling Stockholders.

Price $7.00 a Share

If the shares may be lawfully offered in this state, copies of the Prospectus may be obtained from such of the undersigned as are registered dealers or brokers in this state.

Francis I. duPont & Co.

Paine, Webber, Jackson & Curtis ***Bache & Co.*** ***Equitable Securities Corporation***

Lee Higginson Corporation ***Shields & Company*** ***Shearson, Hammill & Co.***

Auchincloss, Parker & Redpath ***Goodbody & Co.*** ***Granbery, Marache & Co.***

First Southeastern Company ***Vercoe & Co.***

April 22, 1959

Pennsylvania Ave., Wash., D. C.; John M. Graham Assocs., 2000 K St. N.W., Wash., D. C., archts.

▲ Stiger Constr., Inc., Stiger Bldg., Mercer, Pa., CA Est. $7,000,000, 2 story, 375,000 sq. ft., masonry, brick SHOPPING CENTER and COMMERCIAL BLDG., MAPLE SHADE, N. J. Cherry Valley Plaza, Inc., Maple Shade, N. J.

▲ John McShain, Inc., 3501 Sinclair Lane, Baltimore, Md.; LB $3,478,000 (8 bidders), Herring-Run JUNIOR HIGH SCHOOL, 5201 Sinclair Lane, BALTIMORE, MD. City Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Apr. 29. CD 4-21.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 15 Alabama — May 20 Louisiana

STREETS AND ROADS

May 15 Kentucky — May 20 Louisiana

HEAVY CONSTRUCTION—LB & CA

▲ Walter P. Villere, Box 10066, New Orleans, La., LB $2,854,260 (4 bidders), 3e-34 mi. Houma Navigation Canal, HOUMA, LA., Terrebonne Parish Police Jury, Court House Bldg., Houma, La. Bids Apr. 22. CD 3-30.

BUILDINGS—LB & CA

▲ John McShain, Inc., 3501 Sinclair Lane, Baltimore 16, Md., CA $8,827,000, AGRICULTURE AND ENGINEERING BLDGS., for West Virginia University, MORGANTOWN, W. Va.; W. Va. University Bd. Governors, Morgantown, W. Va. Bids Mar. 5. C. E. Silling & Assocs., Masonic Bldg., Charleston 1, W. Va., archts.

▲ T. C. Brittain Co., P. O. Drawer 1811, Decatur, Ga., LB $3,518,628, DeKalb County General HOSPITAL, North Decatur Rd. and Lawrenceville Hwy., DECATUR, GA., DeKalb Co. Hospital Auth., 126 Trinity Place, West Decatur, Ga. Bids Apr. 21. CD 4-10.

▲ Henry C. Beck Co., Fulton National Bank Bldg., Atlanta, Ga., CA $15,000,000, COLISEUM and MERCHANDISE MART, LAWRENCEVILLE, GA., Southwestern Merchandise Mart, Inc., 680 West Peachtree St., N. W., Atlanta, Ga. Awarded Apr. 6. CD 4-5.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

May 20 Michigan — May 28 Indiana & Kentucky

STREETS AND ROADS

May 13, 20 Michigan

▲† Wis., Madison, BOMARC FACILITIES, BA $ 15 [illegible] U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill., Bomarc facilities, incl. 7 or 8 bldgs., Truax Field, $7,500,000-$8,000,000, De Leuw, Cather & Co., 150 N. Wacker Dr., Chicago 6, Ill., engrs. CD 4-29.

BUILDINGS—BA

▲ Mich., Detroit—POST OFFICE, BA $ 25 [illegible] U. S. Post Office Dept., 12th and Pennsylvania Ave. N.W., Wash., D. C., superstructure for Post Office, existing by Post Office Dept.; Extended date. CD 1-29.

HEAVY CONSTRUCTION—LB & CA

▲ ILLINOIS, Dept. P. Wks. & Bldgs., Div. Hwys., Centennial Bldg., Springfield.

Ill.—O'Connor Constr. Co., Reinch Bldg., Springfield, Ill., LB $3,735,101 (10 bidders), paving 6.03 mi. SN, at 24 ft. on FA 1-7 and interchanges at Fayette Ave., Effingham Co., CD 4-14; LB $4,215,000 (4 bidders), combination bid on Fayette Ave. and paving and interchanges, Effingham Co., CD 4-1.

Ill.—Thomas McQueen Co., 1313 S. Circle Forest Park, Ill., LB $2,296,933 (8 bidders), ramps, Montague Road, CA, tunnel on North Expressway, CD 4-8.

E. T. Simonds Carbondale & J. D. Barter Constr. Co., Harrisburg, Ill., LB $1,311,613 (4 bidders), widen 4 mi. base course & mi. and 14 mi. resurf., US 51 north of Pinckneyville, CD 4-29.

▲ Powers Thompson Constr. Co., 37 S. Chicago St., Joliet, Ill., LB $3,000,000, 2 mile toll, fixed joint steel bridges over Illinois Waterway, Channel, BLUE ISLAND, Ill., Rock Island & Illinois Terminal, R.R. Co., C. R. R. Rwy. Co., Ill., 1352 Baltimore & Ohio Bldg., Baltimore and Charles Sts., Baltimore, Md., CD 4-7. Zemon, 203 W. Hubbard St., Chicago, Ill., engr. Bids Apr. 14. (Correction, contractor, CD 4-29, not per LB).

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 15, 16 Texas — May 22 Missouri

STREETS AND ROADS

May 13 Arkansas — May 14 Colorado, Kansas

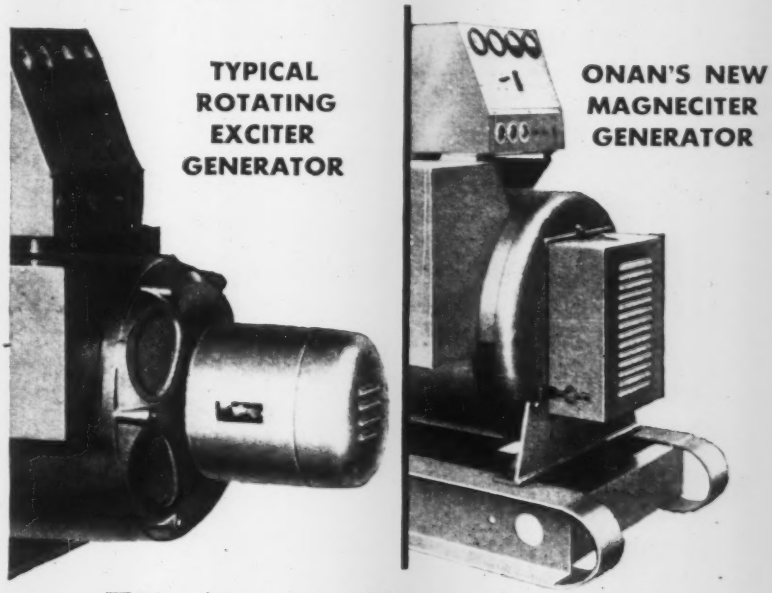
May 15, 16 Texas — May 21 Kansas

May 22 Missouri

▲† Mo., Knob Noster, HOUSING, BA $ 14 [illegible] Eric Pl., Inc., Wichita, Kan., & Kroh Bros. Dev. Co., Lincoln, Neb., negotiated, Whiteman Air Force Base, 243 units, CD 4-15; 82 units, CD 4-22; 100 units, $2,[illegible], A. Johnson, Lindquist & Assocs., 2525 Hogan Blvd., Topeka, Kan., archts., CD 4-29.

THE "NEW LOOK" IN GENERATOR DESIGN

on large Onan gasoline and diesel plants



Eliminates all moving parts in exciter and voltage regulator

Steps up performance in primary and emergency standby installations

✓ ***FASTER VOLTAGE RECOVERY***—Rated voltage is restored within one second after load is applied or removed, compared with 5 seconds for a rotating exciter generator.

✓ ***LESS VOLTAGE FLUCTUATION***—Voltage fluctuation with load changes is less than half that of standard-type generators.

✓ ***GREATER RELIABILITY***—New design eliminates hundreds of electrical connections, the commutator and its brush rig, and many other "break down" points.

✓ ***FEWER ADJUSTMENTS***—No extra sensitive adjustments necessary. Regulator has no delicate multiple contact points.

✓ ***EASIER SERVICING***—All exciter and regulator components are easily accessible. No dismantling necessary.

New Magneciter generators are now standard equipment on all Onan Electric Plants of 100, 125, 150, 175 and 200KW, as well as on many smaller sizes. A choice of Diesel or gasoline engine power is available on most Magneciter-equipped models. Complete specifications on any or all Onan units will be sent on request.

Find Us Fast In The Yellow Pages

Onan builds a complete line. Air-cooled gasoline models from 500 to 10,000 watts; air-cooled Diesels in 3 and 5KW; water-cooled gasoline models from 10 to 150 KW; water-cooled Diesels, 10 to 200KW. Also separate generators, D.C. plants, and accessories.

Call the Onan distributor listed in your telephone book or write directly to us.

D. W. ONAN & SONS INC.

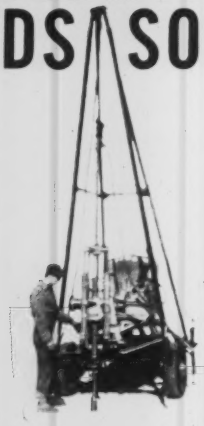
2755 University Ave. S.E., Minneapolis 14, Minnesota

Onan ELECTRIC PLANTS

COMPACT, POWER-PACKED ACKER TEREDO CORE DRILLS

SPEEDS SOIL SAMPLING

IN A VARIETY OF WAYS:



- Drive Sampling
- Undisturbed Sampling
- Penetration Testing
- Permeability Testing
- Wash Boring
- Driving Casing
- Rock Coring and many more!

Whatever the sampling technique, the Acker Teredo is up to it! Its modern design and host of useful features makes the Teredo the most useful you can buy!

It's ruggedly built, yet compact and light enough to be completely portable. Mount it on skid base, truck or trailer and power it with gasoline, diesel, electric or air motor. It's easy to use — inexpensive to operate!

Write today for Bulletin 30-R.

ACKER DRILL CO., Inc. P.O. Box 830 Scranton 2, Pa.

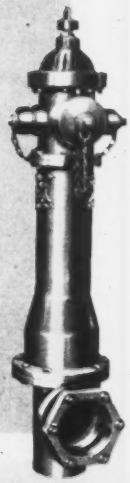
Over 40 years of experience manufacturing a complete line of diamond and shot core drills, accessories and equipment.

EDDY

One dependable source for—

Fire Hydrants	Indicator Posts
Gate Valves	Check Valves
Cutting-In Valves	Foot Valves
Tapping Valves	Air Valves
Tapping Sleeves	Shear Gates

Eddy manufactures a complete line of AWWA fire hydrants, iron body valves, and accessories for municipal and industrial service. Special valves can be furnished for unusual applications. Ask for our catalog.



EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.

WATERFORD NEW YORK

BUILDINGS—SLC

▲ Okla., Oologah, POWER PLANT, Public Service Co., Broad & Main Sts., Tulsa, soon lets contract, steam turbine power plant, incl. transformers, generators, switches, condensers and accessories; Black & Veatch, 1500 W. Meadow Lake Parkway, Kansas City, Mo., Archs., CD 12-27-56.

HEAVY CONSTRUCTION—LB & CA

▲† J. G. Watts Constr. Co., Rte. 1, Box 300, Saleh, Ore., LB $2,307,137, est. $2,368,132, (11 bidders), composite bldg., Glasgow Air Force Base, INV. 59-36, GLASGOW, MONT., U. S. Eng., City-County Airport, Walla Walla, Wash., Bids Apr. 28, CD 3-24.

BUILDINGS—LB & CA

▲† The Martin Co., P. O. Box 695, Baltimore 3, Md., CA Est. $6,000,000, MODULAR NUCLEAR POWER PLANT, at Air Force Station, SUNDANCE, WYO., Atomic Energy Comm., 1717 H St. NW, Wash., D. C., CD 2-6, under LB.

▲† Allen M. Campbell, Chandler Hy., Tyler, Tex., CA $2,966,300, 200-bed U. S. Public Health Service HOSPITAL, GALLUP, N. M.; Bureau of Indian Affairs, Dept. Interior, Branch of Plant Design & Constr., P. O. Box 1777, Albuquerque, N. M., Bids Apr. 22, Flatow, Moore, Bryan & Fairburn, 1840 Lomas Blvd., N.E., Albuquerque, N. M., Archts., CD 4-28.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
May 19 Idaho May 28 California
STREETS AND ROADS
May 27, 28 California

▲† Alaska, Clear, HEATING and POWER PLANT, BA, 2-story steel frame heating and power plant, incl. three 2,500-kw turbine generators and three 100,000-lb per hr oil-fired boilers at Clear Air Force Station, Inv. $4,418,000, $10,000,000, CD 12-15, under LB.

BUILDINGS—BA

▲ Calif., Berkeley, EDUCATION-PSYCHOLOGY—BA, 2-story, Univ. of California, Bd. Regents, Admin. Bldg., Stanley Hall, penthouse at East Wing, 230-seat auditorium, window ext. walls, built-up roofing, education-psychology bldg., $7,000,000, Plans Bureau, 5100 H. J. Brunnier, Sharon Bldg., San Francisco, engr. Gardner A. Dailey, 442 Post St., San Francisco, archt., CD 8-21.

HEAVY CONSTRUCTION—LB & CA

▲† Patti-MacDonald Co., 1310 S. Grand St., St. Louis, Morrison-Knudsen Co., 509 Broadway, Boise, Ida., LB $3,595,049, est. $5,072,834, (6 bidders), 3 concrete buildings, Clear Air Force Station, Inv. $4,418,000, CLEAR, ALASKA, U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash., Bids Apr. 28, CD 3-25, under Plan Buildings.

▲ Lockheed Aircraft Corp., 1705 Victory Place, Burbank, Calif., CA Est. $5,000,000, monorail system, for Century 21 Exposition, SEATTLE, WASH., Airport Way and Atlantic, CD 12-30-57.

▲† S. Patti Constr. Co.; MacDonald Constr. Co.; C. H. Leavell Co. & Scott Co., 140 Admiral St., Kansas City, Kan., LA $6,859,000, launch and service bldg., U. S. Navy, near SPOKANE, WASH., 1743 E. Mansfield Way, Seattle 4, Wash., CD 2-23, see LB.

▲ CALIFORNIA, Inyo-Mono Hwy., Hwy. 120, E. Spring St., Bishop, Calif., to Mono-Inyo Co. Line, Hwy. 395, Haxell & Maxwell, Post Office Rd., San Diego, Calif., LA $3,559,653, grading, paving to const. 16 mi. of 4-lane divided Hwy. 80 between 0.2 mi. East of Pine Valley Creek Bridge and 1 mi. West of Japatul Freeway and 4 turnout areas, 1 interchange, facilities and bridges, CD 12-9, S.D.A., San Diego Co., see LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
June 4 New Brunswick & Quebec
STREETS AND ROADS
May 20, 27, June 3 Ontario

BUILDINGS—BA

▲ Que., Montreal, WAREHOUSE, etc., BA S.I.C. Gen. Storage or warehouse, 4-storey, (exhaust fan Zone Office), 115'-0" x 300'-0", R3, Montreal, 244,000 sq. ft., 4-storey, steel & concrete factory warehouse, offices, service, Inv. $2,000,000, A. Leslie Perry, 1434 St. Catherine St. W., Archt., CD 4-29.

BUILDINGS—LB & CA

▲ G. A. Baert Constr. Co., Ltd., 14 Dawson St., Winnipeg, Man., LB $3,974,000, (7 bidders), OFFICE, Ave. & Main, WINNIPEG, Manitoba Dept. P. Wks., Legislative Bldg., Winnipeg, Man., Bids Apr. 15, CD 3-24.

LATIN AMERICA

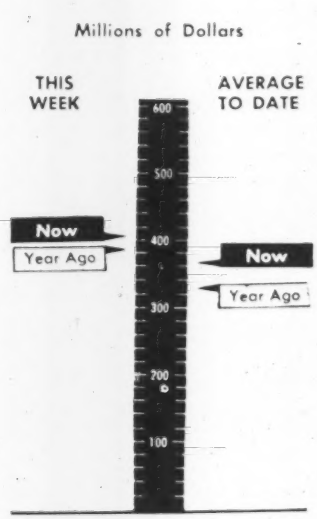
BUILDINGS—LB & CA

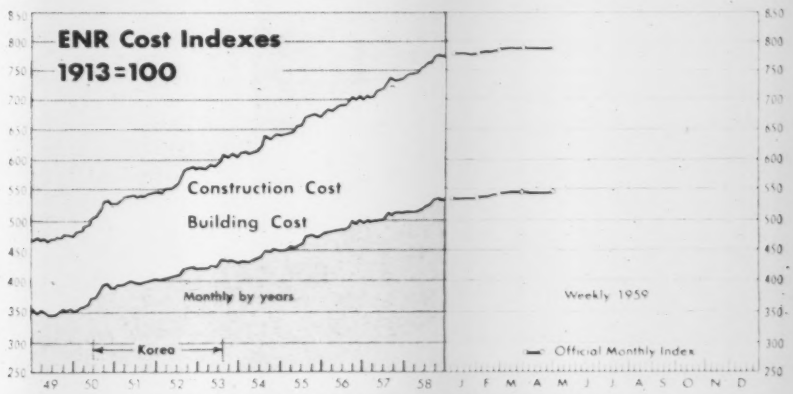
▲ Fluor Corp., 2500 S. Atlantic Blvd., Los Angeles, Calif., U.S.A., LA $20,000,000, design and construct AMMONIA and AROMATICS PLANT at Minatitlan, Veracruz, MEXICO, Pemex (Petroleos Mex. Comp.), Mexico City, Mexico, CD 7-1-58.

(Classified Advertisements see pp. 105 to 108)

Construction Scoreboard

CONTRACTS ...




ENR Cost Indexes
1913=100
Construction Cost
Building Cost
Monthly by years
Weekly 1959
Korea
Official Monthly Index
49 50 51 52 53 54 55 56 57 58 J F M A M J J A S O N D

CURRENT COST INDEXES

ENR INDEXES (1913 = 100), 20-cities' average	Week of Apr. 30* 1959	% Change from Apr. 2 1959	% Change from Apr. 3 1958
Construction Cost	790.37	+0.8	+6.0
Building Cost	544.11	+0.3	+5.4

* Official Monthly Index for May.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
To convert above indexes to 1949 = 100: Divide Construction Cost by 1.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 19 wks 1959	Cum. 19 wks Chge '58-'59 %
	millions		
All Heavy Constr.	$103.3	$6,907.8	+10
PRIVATE	17.9	3,292.4	+12
PUBLIC	225.4	3,615.4	+8
State & Municipal	178.6	2,567.8	−2
Federal	46.8	1,047.6	+43
By Type of Work			
PUBLIC			
Waterworks	5.6	152.0	+44
Sewerage	15.2	220.9	+11
Bridges*	11.4	212.4	+19
Highways	99.2	1,039.5	0
Earthwork, Waterways	9.7	291.4	+7
Buildings, Excl. Housing	42.5	918.8	+7
Housing	10.7	237.9	−35
Unclassified	31.1	542.5	+69
PRIVATE			
Buildings			
Mass Housing	95.1	1,443.2	+10
Commercial	54.6	810.1	+16
Industrial	24.7	893.0	+18
Unclassified	3.5	146.1	10

*Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and water ways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

WAGE RATES, 20-cities' average

	May 1959	% Change from April 1959	% Change from May 1958
Common	$2.535	+1.3	+5.1
Skilled (average 3 trades)	3.818	+0.6	+4.7
Bricklayers	4.06	+0.3	+4.5
Structural Ironworkers	3.847	+0.8	+5.1
Carpenters	3.547	+0.7	+4.7
Equipment operators (average three types)	3.444	+0.6	+2.5

MATERIAL PRICES, 20-cities' average

Structural Steel (average 3 mills), per cwt	5.50	0	+4.3
Lumber, 2x4 Fir, per M fbm	121.01	+0.6	+7.4
Lumber, 2x4 Pine, per M fbm	107.90	+0.3	+2.8
Cement, bulk, per bbl	3.93	0	0
Sand, per ton	2.491	+0.4	0.2
Ready-mixed concrete, per cu yd	13.88	+0.2	+0.2
Gypsum sheathing, ½"x2'x8', per M sf*	62.875	+0.4	+0.1
Fiber board sheathing, ½" sq. ed., per M sf*	71.277	+0.4	0.2
Mineral wool insulation, 3" batts, per M sf*	69.26	−0.8	2.1
Crushed stone, 1½", per ton, CL	2.759	+0.2	2.8
Concrete blocks, sand gravel, 8"x8"x16", each*	.226	+0.4	0.9

	April 1959	Mar. 1959	April 1958
Brick, common, per M	38.52	+1.3	+1.7
Lime, hydrated finishing, per ton, CL	38.536	+0.9	+4.7
Structural clay tile, 3x12x12", per M, 2,000 up*	186.16	+0.1	+1.4
Vitrified clay sewer pipe, std 12", per ft	1.377	+0.1	+5.7
Concrete sewer pipe, 12", per ft	1.342	+0.2	+4.0

* Delivered, trucklots.

CAPITAL . . .

New Capital For Construction	Week of April 30 1959 millions	Cum. 18 wks 1959	Cum. 18 wks Chge '58-'59 %
Corporate Securities	$ 41.8	$1,292.4	−40
State and Municipal:			
All Except Housing	100.4	2,460.7	−1
Housing		30.6	+51
Federal Loans	8.4	48.0	−32
Federal Aid			
Total Nonfederal	$150.7	$3,831.6	−19
Federal Appropriations:			
Projects in U. S.			100
Outside U. S.			
Total New Capital	$150.7	$3,831.6	−28

ENR INDEX REVIEW

	Construction Cost 1913 = 100	Construction Cost 1949 = 100	Building Cost 1913 = 100	Building Cost 1949 = 100	Volume 1913 = 100	Volume 1949 = 100
May	751.37	137.56	518.62	147.42	671	195
Jun	757.31	138.76	521.09	148.13	661	191
Jul	762.52	139.85	524.29	149.03	705	204
Aug	764.44	160.25	525.62	139.41	575	166
Sept	773.47	162.15	535.02	152.09	541	156
Oct	775.30	162.53	536.53	152.51	446	129
Nov	774.12	162.28	534.96	152.07	384	111
Dec	773.81	162.22	534.79	152.02	466	135
1958 Average	759.16	159.15	521.68	149.15	531	153
1959						
Jan	778.28	163.15	536.23	152.43	469	133
Feb	778.55	163.25	537.25	152.72	472	136
Mar	781.35	163.80	540.32	153.59	586	169
Apr	784.41	164.44	542.93	154.33	532	154
May	790.37	165.69	544.11	154.76		

Don't Expect Big Spending Bills

- **Despite heavy liberal majorities in Congress, the President's veto power is keeping tight rein on spending plans.**
- **Result: Less money than Democrats want for such things as housing, airports, sewerage and other community facilities.**

It went virtually unnoticed at the time, but in early April Sen. Lyndon B. Johnson wrote the epitaph for rampant liberal hopes that the 86th Congress would be able to legislate a sort of "new New Deal."

At stake:

- **Increased spending for public works.**
- **More government help for housing.**
- **Federal construction of atomic and hydro projects.**

Senator Johnson, in a tip-snorting speech before the AFL-CIO's mass rally of the unemployed in Washington, denounced the Administration for too little concern about the nation's jobless. That got the headline play.

What was more important, but scarcely mentioned, was something else the Senator said: "When government is divided, the veto can be king."

To anyone who had lingering doubts about the soundness of Senator Johnson's philosophy, events of the last week provided a clincher. The veto is, indeed, king.

Proof came, rather oddly, in an area where a test of the principle had been least expected—that is, it did not concern a spending issue. Rather, it revolved mainly about personalities.

President Eisenhower, in the first of what will undoubtedly be several vetoes of 1959, sent back a bill that would have stripped Agriculture Secretary Ezra T. Benson of authority to review REA electric co-op loans.

Most everyone, including Democrats in private, agreed that actually the bill had little merit. In its early days, the Administration made some moves that REA co-ops considered unfriendly, but in recent years a sort of truce, albeit an uneasy one, had been arrived at by Secretary Benson, the REA itself, and the co-ops.

What happened in the wake of the President's veto is important because it does much to explain Washington's political atmosphere. It is much more sedate than what many an observer had imagined in the aftermath of last November's landslide that gave Democrats their biggest Congressional margins since early New Deal days.

First, the Senate overrode the veto—with two votes to spare—64 to 29.

Then, two days later, the House took up the veto. There were 280 votes to override, 146 to sustain. Overriding requires two-thirds of those present and voting. And thus the veto was upheld by a four-vote margin.

The issue was less important than what is symbolized by the outcome and the lessons that have to be drawn.

The biggest lesson is this: President Eisenhower can have his way on spending, if he stands firm. And that means less money than Democrats want to vote for such things as housing, airports, community facilities and sewerage grants.

It is clear that President Eisenhower, a lame duck President and not an exceptionally strong one, is stronger than the 86th Congress when a test of power is forced. He chose to make the REA bill a test of strength in Congress. Senator Johnson and Speaker Sam Rayburn of the House accepted the challenge and lost.

That Lyndon Johnson's Senate legislative troops voted to override by a narrow margin and Sam Rayburn's House forces failed by a hair's breadth serves to illustrate two other important things.

- **Congressional Republicans, demoralized and fighting among themselves after last November's resounding losses, have pulled themselves together.** President Eisenhower's liaison has improved with Republican politicians, and his new chief agents on Capitol Hill—Sen. Everett M. Dirksen (R., Ill.) and Rep. Charles Halleck (R., Ind.)—work hard, and effectively, in the President's behalf.
- **The House is demonstrably less liberal than the Senate.** The REA veto showdown proved this. The fact had been shown earlier, in a less dramatic way, when a House coalition of Republicans and Southern Democrats almost succeeded in killing the Democratic airport construction-and-aid bill and substituting President Eisenhower's $200-million version. The Senate, disregarding White House wishes, had voted $465 million. House Democrats finally voted $297 million.

Despite a lapse of more than a month, there has been no attempt yet to adjust House-Senate differences and send the bill to the White House. The Democratic strategy is to hold it back and send another of the so-called "big spending" bills—the Omnibus Housing Act of 1959—to the White House ahead of airports. The strategy is based on a feeling that housing is a better spending issue—that is, with more emotional appeal—than airport construction and, if President Eisenhower can be convinced to accept a more costly housing measure than he proposed, it might ease the way for other accommodating gestures to Congress.

Early this week, the housing act was still lodged in the powerful Rules Committee of the House, which, in one vote, split 6 to 6 and failed to clear it for floor action. Conservatives in both parties are honing their knives for some trimming on its controversial aspects—notably public housing and, to a lesser extent, slum clearance and urban renewal.

The general supposition is that, by one means or another, the Rules Committee will let go of the housing bill fairly soon and it will be passed and put on President Eisenhower's desk by the third week of May. Much of the hope for its acceptance lies in the fact that it will provide new and vital mortgage insurance authority for the Federal Housing Administration, which by June could be in dire straits without it.

Lyndon Johnson, as the dominant Democrat in Washington, is the man Democrats rely on mainly for getting something accomplished in this atmosphere. Senator Johnson's delicate ob-

jective: to write a Democratic legislative program without being obstructionist to the Administration.

There are those Democrats who want to meet President Eisenhower head-on about spending, and this accounts for the flurry of attacks on the Johnson-type of leadership. The Texan holds it is better to compromise and obtain something than to stand unyielding when the end result will be nothing but acrimony. On spending, especially, he has an easy majority of Democrats with him.

This, then, is the 86th Congress' course for 1959: Move gingerly down the left of political center. In the political spectrum, President Eisenhower strives for the center—but his relative position is to the right of center. Thus in this relatively narrow area, the coming battles between Congress and the President will be less about method than about degree.

But 1960 may be another story. The entire House, one-third of the Senate and the Presidency go on the political auction block.

Chances for Congressional passage of such things as a school construction bill, minimum wage raise, improved and expanded social security benefits will be better then, with elections drawing near, than now when the voting is 18 months distant.

This session, while its most liberal tendencies are frustrated, is looking even beyond 1960 to the time when chances of writing a "new New Deal" will be much brighter—or so the Democrats hope.

Bridge Bids In, but Court Test May Stall Project

A legal roadblock may delay the start of construction on a second bridge across Seattle's Lake Washington.

The Washington Bridge Authority cannot award the contract until a revenue bond issue for the bridge is sold. Earlier this year the state legislature created a reserve fund to assure payment of interest on the bonds if revenues were insufficient. But the legality of that law will be tested in a case scheduled for filing before the Washington Supreme Court.

Low bidder was Guy F. Atkinson Co. of San Francisco. The company bid $10.9 million on March 24 to build the floating section of the proposed bridge (ENR April 2, p. 26). The contractor is believed willing to extend his bid beyond the 90-day award period specified in the bid documents.

The new bridge is 3.5 miles north of an existing floating bridge.

Oklahoma Official Asks Backing for New Tollroad

Tulsans are being urged to fight for a toll turnpike on the eastern part of Oklahoma. The road would be part of a Kansas City-Tulsa-Dallas highway.

Lack of state funds means that any such project would have to be constructed as a tollroad or as part of the Interstate System, according to Highway Commissioner Harold C. Stuart. Kansas and Texas are already boosting the road, Mr. Stuart reports.

Business in Brief . . .

• **Contractor "lottery"**—Gov. Price Daniel has before him a bill passed by Texas' legislature to discourage identical bidding on public contracts. If the governor signs the bill, local governments will have to award contracts by drawing lots when two identical low bids are received.

• **Pennsylvania road funds**—Pennsylvania's Highway Department will ask the 1959 legislature for $119 million to match federal-aid funds.

• **Acquisition fees reduced**—Ohio's Highway Department cut fees paid to private firms for negotiating right-of-way purchases by an average 53%. Appraisal costs running $160 to $210 per parcel were cut to a $100.

• **Pipe firm sells out**—American-Marietta Co. of Chicago bought Thomas Concrete Pipe Co.'s five plants in Oklahoma. Thomas is Oklahoma's largest producer of concrete pipe, pre-stressed concrete products, and building blocks.

• **Utilities relocation**—Texas' Supreme Court will review a 1957 state law that authorized the highway commission to pay for relocating utilities along rights-of-way on Interstate roads.

• **Washington housing**—All-State Properties, Inc., plans to construct a $50-million residential development in Prince George County, Md., a suburb of Washington, D. C.

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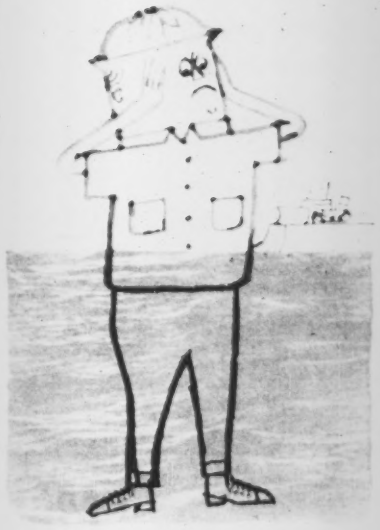

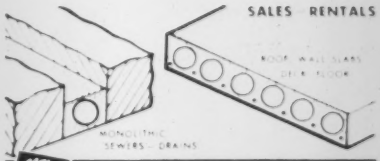

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DESERT—HOT BY DAY

Modern heavy-duty Asphalt pavement to endure years of heavy traffic

. . . solves problem of extreme variations of sub-soil bearing values, too.

Here's another Asphalt-paved Interstate highway.

Laid right through the heart of California's forbidding Mojave Desert, from Victorville to Barstow . . . this modern, heavy-duty freeway proves once again that no pavement is as versatile and economical and none is stronger or more durable than a well-constructed Asphalt-concrete pavement.

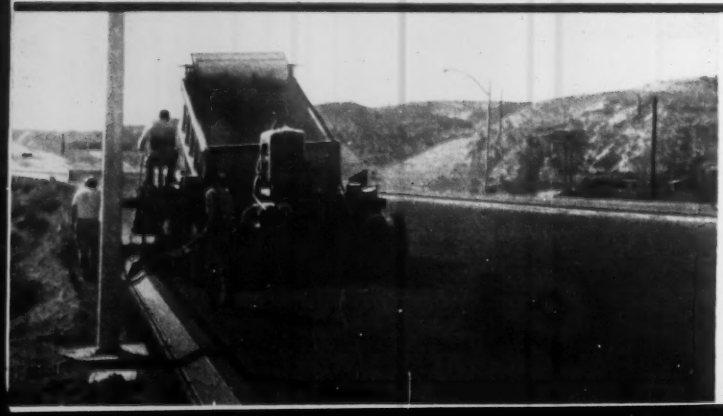
The project . . . 29.335 miles long . . . is one section in the planned conversion of U. S. 66-91 to Interstate Highway 15. Opened to traffic only last December, this outstanding Asphalt pavement already carries about one-fifth of all traffic between California and neighboring states. By 1980 it is expected to carry 33,600 vehicles per day at speeds up to 70 MPH . . . including some 2800 heavy-duty trucks.

This rugged Asphalt pavement **cost only half as much** as comparable concrete pavement to perform the same service.

Asphalt design overcomes drastic temperature changes and varying soil conditions.

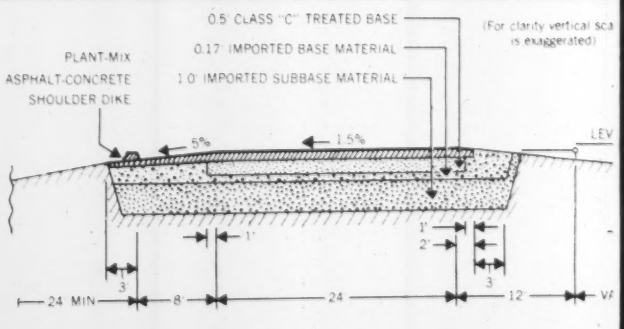
In the desert country between Victorville and Barstow, temperatures of pavement surfaces sometimes vary by as much as 140°F by day to freezing at night. Here, too, "R-Values" of the soil vary from as low as 10 to as high as 75.

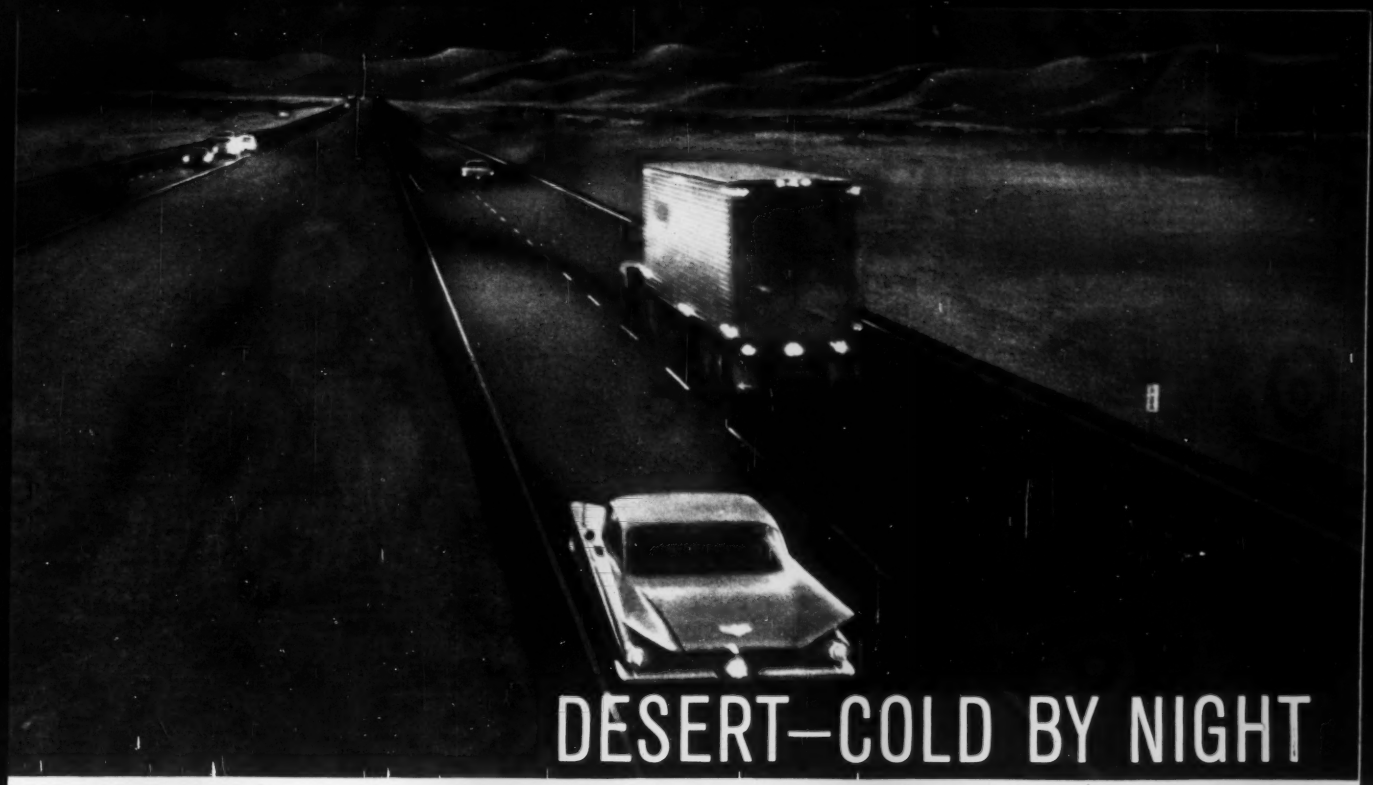
Asphalt-concrete shoulder dike prevents erosion, aids safety . . . may be placed quickly. To guide desert freshets to prepared drains and to provide a clearly defined shoulder edge, the design of the Victorville-Barstow project called for six-inch-high Asphalt-concrete shoulder dikes. Here you see one being placed at a rate of 24,000 feet per day by modern commercial equipment.



Asphalt-concrete pavement provides for a minimum of expensive materials . . . yet conforms to highest U. S. Bureau of Public Roads strength requirements for Interstate Highways. Notice below that 20 inches of

CROSS SECTION OF VICTORVILLE





DESERT—COLD BY NIGHT

on California Interstate 15 has ruggedness and drastic temperature changes

To provide a pavement of **predictable** strength and the durability to stand up under heavy traffic in the face of these drastic conditions, the engineers stripped top cover and constructed subbases and bases of required thickness and quality from nearby borrow.

In this heavy-duty but lower cost pavement, the wearing course is ½-inch of open-graded hot-mix Asphalt surfacing and the leveling course is 3 inches of dense-graded hot-mix Asphalt concrete placed in two courses 1½" thick. An Asphalt prime coat binds the leveling course to the base.

Construction speeds proved excellent . . . only 17 months to opening day . . . only 14 weeks to lay the 250,000 tons of Asphalt concrete. And the pavement is superbly smooth-riding.***

Modern Asphalt-concrete pavements . . . engineered and constructed like the Victorville-Barstow project . . . are **reputation builders** and **tax savers.** Sure to benefit you and your state for years to come! Specify Asphalt concrete for **your** Interstate highways.

*Based on comparable pavement costs in the same highway district.
**California-developed standard which compares soils on basis of their resistance to plastic deformation under load.
***Average Profile Roughness Index 2 inches per mile.

Ribbons of velvet smoothness . . .
***ASPHALT**-paved Interstate Highways*

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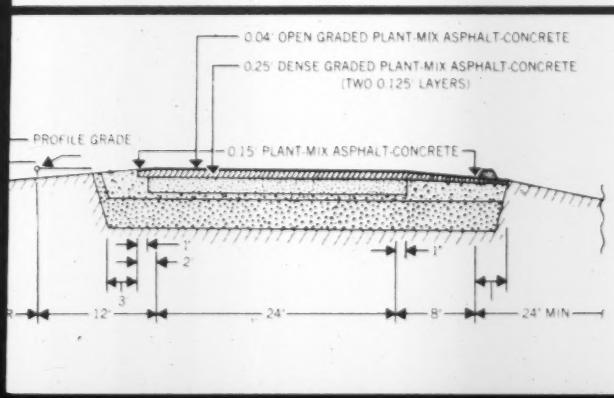
Asphalt Institute Building, College Park, Maryland

the 23½-inch pavement structure is low cost material imported from a local source. This same source supplied aggregate for the Asphalt plant mix at a relatively low cost.

ARSTOW PROJECT, CALIFORNIA



Set of "doubles" speeds along Asphalt-concrete pavement in comfort and safety. Modern tax-fund-stretching Asphalt pavements are now being specified for many of the nation's heaviest-duty roads. Experience (with the New Jersey Turnpike, with jet plane runways, for example) proves these rugged, durable Asphalt pavements stand up under heaviest traffic.

Four-Month Awards Total Is Up 13%

Heavy construction contract awards during April topped $1.9 billion. Although the weekly average rate for the five-week month is 7% below the four-week month of March, last month is still the third highest April on record.

Volume for the first four months of this year now stands at $6.5 billion. The four month total is 13% above the same period last year and is second only to the record set in the boom year of 1956.

Public works contracts in April hit $1.1 billion, the first time this year they topped $1 billion. The total is 5% above March and 10% better than April 1958.

For the four months, public works contracts are just under $3.4 billion, a 12% increase over the rate of 1958's first four months.

Private awards in April totaled $842 million. However, the weekly average rate was 20% below March and 17% short of April 1958.

Despite these sags, the $3.1 billion worth of private contracts let in the first four months is 15% above last year.

Federal work for the first four months is 56% over 1958, also a record for the period. In April, contracts totaled $347 million, a record for an April month.

Missile base awards are bolstering the "unclassified" public works sector, which had a contract award total of $511 million in the January-April period. Capehart housing added strength to the public housing total, which gained sharply in April compared with March and one year ago. The impact of federal activity also is apparent in this year's 15% gain in earthwork, dams and waterways projects. Volume tallied $282 million in the first four months.

Private mass housing contracts during the first four months topped 1958 by 9%, with a total of $1.3 billion. The April pace, however, is 6% below that of March on a weekly average basis, with awards of $414 million.

Commercial building continues to give strong support to the current year's rebound in heavy construction. In April, contracts totaled $229 million, bringing the rate 29% ahead of March and 44% above one year ago. During the first four months, commercial contracts amounted to $756 million, 19% more than the same period last year.

Cost Indexes Continue Climb

Wage boosts in seven of ENR's 20 survey cities and higher lumber prices in 10 of them, combine to boost the May Construction Cost Index by six points.

The index is at record high of 790. The May Building Cost Index is up one point to a record 544. Both indexes are based on 1913 = 100.

May's Construction Cost Index is 0.8% above April and 5.1% above May 1958. The Building Cost Index is 0.2% above last month and 4.8% above May 1958.

Heavy seasonal demand from housing brought the consistent rise in lumber prices. The average cost of fir and pine 2 x 4s in the ENR 20-Cities Indexes has risen $5.40 per Mfbm since the start of this year. Little relief in lumber prices is expected before the third quarter, and it may not even appear then. Like most construction commodities, lumber shows more flexibility when demand is high than during slack periods. This tends to make lumber prices "sticky," even during periods of declining demand.

The traditional spring wage negotiation activity brought upward pressure on the indexes for May. Wage increases effective April 1 ranged from 5 cents to 25 cents an hour, with the average falling between 10 and 15 cents.

Engineering Construction Contracts for April

Five Weeks—Thousands of Dollars (000 Omitted)

	April, 1959								Four Months Continental U. S. Cumulative			
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total Continental U. S.	% Change April (av. wk.)	1959 (18-weeks)	1958 (17-weeks)	% Change '58 to '59 (av. wk.)	Canada April 1959
Public Works, Total	74,877	153,159	265,269	179,064	229,772	161,089	1,063,230	+10	3,390,005	2,849,387	+12	52,372
Waterworks	667	6,276	3,822	4,483	12,499	6,196	33,943	−5	146,443	86,102	+61	1,921
Sewerage	4,871	16,374	12,786	11,557	11,166	8,367	65,121	+50	205,718	179,680	+8	4,425
Bridges	3,969	4,459	12,141	6,712	13,553	8,249	49,083	−17	201,141	149,177	+27	3,191
Earthwork, waterways	2,149	9,156	27,823	25,158	15,757	27,371	107,414	+34	281,600	230,260	+15	1,632
Streets and roads	23,459	24,422	89,808	43,919	97,518	40,251	319,377	−4	940,117	886,441		16,718
Buildings: Residential	11,180	13,342	18,399	12,041	19,719	16,449	91,130	+13	227,240	340,846	−37	5,605
Other	12,605	61,733	70,089	49,752	28,466	38,576	261,221	+32	876,292	728,613	+14	15,474
Unclassified	15,977	17,397	30,401	25,442	31,094	15,630	135,941	+3	511,454	248,268	+95	3,406
State & Municipal	46,563	115,453	166,430	125,450	163,258	98,983	716,137	−3	2,389,204	2,243,624	+1	41,863
Federal	28,314	37,706	98,839	53,614	66,514	62,106	347,093	+53	1,000,801	605,763	+56	10,509
Private, Total	87,418	221,473	115,366	187,001	138,042	92,121	841,421	−17	3,114,542	2,565,213	+15	80,013
Bridges									150			
Buildings: Industrial	6,307	22,397	38,655	42,429	32,576	19,387	161,681	+17	868,237	645,829	+27	41,640
Mass housing	37,420	131,197	36,229	107,381	58,221	43,092	413,540	−38	1,348,054	1,166,067	+9	13,885
Commercial	42,170	62,343	24,436	36,725	34,926	28,694	229,294	+44	755,528	598,788	+19	3,200
Unclassified	1,521	5,606	16,046	466	12,319	948	36,906	−22	142,573	154,538	−13	21,288
Total April, 1959—5 weeks	162,295	374,632	380,635	366,065	367,814	253,210	1,904,651*	−4				132,385
March, 1959—4 weeks	104,020	380,907	241,866	209,600	474,589	233,344	1,644,326	....			....	307,441
April, 1958—4 weeks	80,804	310,495	205,338	248,320	312,159	226,189	1,583,305	....			....	156,471
Four Months—1959 (18 Wk.)	448,291	1,540,815	1,163,389	968,591	1,487,115	896,346		....	6,504,547*		+13	439,826
Four Months—1958 (17 Wk.)	308,735	1,479,274	711,484	1,014,268	1,082,513	818,324		....		5,414,600	....	475,894
% Change '58 to '59 (Aver. Wk.)	+37	−2	+54	−10	+30	+3		....			....	−13

* Add Alaska: 4 '59 $19,857 4 Mos. $33,506

ENGINEERING NEWS-RECORD *reports continental U. S. construction projects at the following minimum costs—Waterworks, excavation, drainage and irrigation, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $100,000.*

New Start Proposed for ESG

- **California group may become parent organization for the national federation of engineers' unions.**
- **ESG would retain its name and identity. Steps would be taken to prevent domination of ESG by EAA.**

A surprise development cleared the path last week for possible removal of one of the obstacles that has kept Engineers and Scientists Guild from becoming a going concern.

ESG, which still exists only on paper, is a national federation of engineering unions that embraces both professional engineers and technicians.

The development is a counterproposal to the Federation's present organizational plans. It was put before the ESG steering committee in San Diego last week by Engineers and Architects Association, the largest of ESG's proposed affiliates.

EAA now suggests that it furnish the framework for the new organization. Out of this proposal could come an ESG with a slightly different character than previously planned, but with the same aims and purposes.

EAA represents 5,500 engineers and technicians in California. Its ambition to control the proposed ESG has kept the federation from becoming a reality ever since the idea first took form in October, 1957 (ENR, Apr. 23, p. 31).

But the latest EAA proposal represents a softening of its attitude, says interim ESG president Charles N. Hall, who is also head of the ESG steering committee. "I think the future looks bright," he says.

• **A compromise**—The latest offer allows EAA to become ESG's master unit, something EAA has long insisted on. Yet the offer, by suggesting decentralization of EAA power, allays the fears of other interested unions that EAA would have complete control of the new federation.

Specifically, EAA proposes the following:

• Keep the headquarters and assets in Los Angeles.

• EAA officers will ask their convention, meeting in California later this month, to amend the constitution to give the five individual chapters of EAA more power, at the expense of the board of governors. The board of governors would no longer have the power to take over a chapter, says Stanley C. Nelson, the president of EAA.

• If the amendments are accepted, proposed ESG units will be "invited" to join EAA. When enough new units have joined, a national convention will be called. Its first order of business will be to change the name from EAA to ESG.

EAA's tactical retreat included these concessions:

• Retention of ESG's name. Other proposed member unions had fought for this because of the effort to give ESG a character and identity of its own.

• Disciplining of member unions will be subject to outside arbitration. Lack of it was one of the complaints against Engineers and Scientists of America, from which the proposed ESG members split in 1957.

• The new organization will be a well-knit federation rather than a loose collection of member unions. The ESG steering committee wants assurance of a strong, national group capable of militant collective bargaining. ESG will also take in individual engineers as members-at-large.

• Member unions will be able to withdraw virtually at will.

• **The outlook**—EAA's latest proposal has already been accepted by three prospective members of the new national group: Engineers Association of Sperry Gyroscope Co., ESG Lockheed Section at Lockheed Aircraft and the Railway Technical Engineers.

Two prospective members refused to go along with the proposal: Tennessee Valley Authority Engineers Association and Engineers and Scientists of California.

"I think the EAA members will approve the proposed changes in their constitution," says Mr. Hall. "This," he explains, "will pave the way for the new national organization. However, even if the amendments are not approved, other prospective members of ESG will go ahead without EAA."

Said Stanley Nelson of the EAA proposal: "This would make EAA more of a cooperative group and would enable other groups to join the federation without loss of identity."

(Labor continued on page 105)

Labor in Brief . . .

• Reuther for President?—"The labor movement is my life . . . I have no other ambitions . . . I plan no other kind of career," said AFL-CIO's Walter Reuther last week in requesting all locals of the auto workers union not to get involved in "Reuther for President" committees. He said such committees have already started.

• Inter-union clash—A feud—marked by occasional violence—between AFL-CIO construction unions and United Mine Workers' District 50 stalled work on a multimillion-dollar, four-lane highway project in Paducah, Ky., for more than a week. Work has been resumed under a federal court injunction. Building trades were accused of attempting to cause a switch in union affiliation.

• Right-to-work suit—Six nonunion workers have filed lawsuits against Morrison-Knudsen Co., asking $30,000 each as compensatory and punitive damages for alleged discharge in violation of Alabama's right-to-work law. They refused to join a union while working on a hydroelectric power plant being built by the firm for Alabama Power Co.

• Homebuilders unite—Five West-Coast builders' associations have formed the Northern California Home Builders Conference as collective bargaining agent for homebuilding contractors. Conference is open to all area employer groups that include homebuilders. J. Robert Mitsch of Santa Clara County Contractors and Home Builders is president.

Steel: Construction's Stake

Current contract negotiations between the United Steelworkers of America and steel producers may make history for three reasons:

- It's probably the first major labor contract ever negotiated in a goldfish bowl, with both sides trying their case in the press and before Congress.
- The issues include some classic ones: how to measure productivity, what causes inflation and how the profits pie should be divided.
- The steelworkers' demands, if met, have broad repercussions for labor relations in virtually all industries.

Formal contract negotiations started this week in New York City's Roosevelt Hotel. The present three-year contract ends June 30.

Price boosts seem inevitable because of the stand taken by both sides.

The union insists workers must get a larger share of productivity increases within the steel industry. Its demands, if met, would give steelworkers their biggest gains in the union's history.

The steel producers are equally firm in contending that increased wages would force them to increase steel prices. But steel company profits, now setting new records, have backed industry officials into a corner in trying to justify their position.

The adamant stand taken by both the union and the industry, together with the record demands of the union, make a steel strike appear likely.

Present indications are that a strike, if it comes, will last a month or less. Thus contractors are not too concerned.

Bookings for structural and heavy plate steel shot up, in recent weeks, partly as a strike precaution and partly because of the seasonal pick-up.

Most heavy construction firms have signed contracts and ordered steel for this summer's work. Orders placed since March have been "subject to price increases." In some cases, planning and design work was rushed or preliminary drawings were used to order steel well in advance of the anticipated strike. The only contractors who will be hurt by a short strike are those who get large jobs between May and July.

Most observers feel that a strike, if called, will necessarily be a short one because of the steelworkers' weakened position. Last year's recession put 600,000 of them out of work and many of them have not been re-employed. Because of vacations, the mills usually shut down for several weeks in July and August anyway, so steelworkers wouldn't be hurt much by a short strike.

Heavy stockpiling of steel during the first half of the year may also curb the duration of a strike. Mills have been operating around 94% of capacity during recent weeks. A third quarter drop in steel orders will mean lay-offs for steelworkers.

One steelworker demand spells particular trouble for the construction industry. The union has a contract provision "to protect against contracting out work, including a provision that all available employees in the bargaining unit be fully utilized on bargaining unit work." This could fan new flames in the basic dispute between industrial and building trade unions over industrial construction work. It also could mean a loss of millions of dollars in contract construction.

David J. McDonald, steelworkers' president, has called his union's 1956 contract the "greatest ever negotiated in this country." It gave package increases totaling 62½ cents an hour. He intends the next contract to be even greater.

The steelworkers want another three-year contract (the industry prefers one-year terms) with extensive wage increases—estimates are for an increase of 10 cents per hour the first year. The union wants continuation of the cost-of-living adjustments.

The union also is pushing for shorter working periods to reduce widespread unemployment in the industry. It is worried about technological unemployment and claims, for example, that today's record steel production is being produced by fewer workers than were on the payrolls three years ago. It proposes a shorter workweek—perhaps 30 hours—and periodic extended vacations (a three-month paid vacation every five years).

Among other steelworker demands: higher premium pay for weekend and holiday work; more paid holidays and vacations; increased supplemental employment benefits for more workers; insurance plans paid for by the employer; and periodic cost-of-living increases for pensioned workers.

Many of these demands, if won by the pattern-setting steelworkers' union, may eventually be demanded by the building and construction workers' unions.

Overtime vs Short Workweek

"Aside from the workers' desires for longer vacations and more paid holidays, there is little evidence they really want a shorter workday or workweek."

That is the conclusion of Richard Livingston, general secretary of the carpenters union, which has thrown its weight behind the drive for a four-day workweek.

Although union leaders in the top echelons are placing more and more emphasis on a shorter workweek or shorter workdays as one of labor's legislative and bargaining "musts," little has been said about rank-and-file interest in the drive.

Until the working man is persuaded to trade money for leisure, the drive will never accomplish its purpose of dividing available work among more people, suggests Mr. Livingston, writing in the current issue of the union's monthly journal. This means, he says, that the present concept of overtime must be changed.

Mr. Livingston contends that "too many union people" look upon overtime as a handy way of earning more money, rather than as a device for discouraging employers from imposing long working hours.

He feels this is complemented by a cost-inspired employer tendency to indulge in overtime rather than in workforce expansion—a tendency reflected by the gap between employment and production recovery from the recession.

Result, according to Mr. Livingston, is that the standard workweek can be slashed without making jobs available to more people. This, in turn, perpetuates "a large pool of permanently unemployed," he adds.

He attributes existence of the pool to an increase in productivity and claims its continuation "is inevitable unless workers take part of their fruits of increased productivity in greater leisure time."

Although the "shorter workweek offers the greatest promise of work for everybody," Mr. Livingston concludes, the 40-hour workweek will not become a thing of the past until overtime falls into disfavor.

Contractor Wins Damage Suit Against Strikes

A one and a half day strike over an employer's refusal to put both an operator and a helper on an automatic electric welding machine has cost an iron workers local union $5,133.

The amount was awarded as damages last month to Schacht Steel Construction, Inc. of Hillside, N. J.

The case was filed and tried, not under the featherbedding or other unfair labor practice provisions of the Taft-Hartley Act, but under common contract law.

The court concluded that the strike was a breach of the labor contract. Damages were arrived at by prorating the company's overhead costs over the life of the strike.

Key to the case was the labor agreement itself, which expressly provided that the company retained the right to increase or decrease the number of jobs, to schedule and assign work, and to suspend or discharge employees for proper cause. The contract called for handling disputes under a grievance procedure, with final resort to arbitration, and prohibited a strike except on the company's refusal to arbitrate.

The court ruled that the dispute over whether a helper should be assigned to the operator of the welding machine was subjected to arbitration under the contract and that the union breached the contract by striking without seeking arbitration first.

Interstate Commerce Case Slated for Court Review

The U. S. Supreme Court last week accepted for review the conviction of Nicholas A. Strunc, former president of a hod carriers local union in the Pittsburgh-area, on charges of violating the Hobbs Anti-Racketeering Act.

The decision, when handed down, may shed further light on the problem of determining what construction work falls within interstate commerce and thus comes under federal labor laws.

Mr. Strunc was convicted of using the threat of labor troubles to force a supplier of ready-mixed concrete, used in the construction of a steel plant in Allentown, Pa., to pay over $30,000.

He contends the lower courts erroneously applied the Hobbs Act to a purely local situation.

The lower courts held that the interstate requirements of the law were satisfied because the sand used in the concrete came from outside the state and the steel mill would ship much of its production to other states.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record
P.O. Box 12, New York 36, N. Y.

Bids: June 16, 1959.

Government of the Virgin Islands

Advertisement for Bids for Construction of Trunk and outfall Sewer and Pumping Station at Christiansted, St. Croix, Virgin Islands.

Project No. SC-H-57

Sealed bids in duplicate for Construction of Trunk and outfall Sewer and Pumping Station at Christiansted, St. Croix, Virgin Islands will be received until 2:00 P.M. Atlantic Standard Time, June 16, 1959 in the office of the Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands (First Floor, Western Section), and then publicly opened.

The work consists of two Phases as follows:

Phase 1 includes the construction of approximately 1960 LF of 15" Vitrified Clay Pipe Gravity Sewer; a New Pumping Station; an Outfall Sewer constructed of approximately 170 LF of 16" Cast Iron pipe having standard mechanical joints, and approximately 262 LF of 16" Cast Iron pipe having Locked Type Mechanical Joints; approximately 310 LF of 8" Vitrified Clay Pipe By-Pass Sewer from New Pumping Station to the Shore; Appurtenances and Incidental Work.

Phase 2 includes the construction of approximately 500 LF of 8" Cast Iron Pipe Force Main having Standard Mechanical Joints; approximately 264 LF of 12" Vitrified Clay Pipe Gravity Sewer; New Pumps and Piping Alterations at the Existing Pumping Station; Appurtenances and Incidental Work.

Plans, specifications and other Contract Documents are open for public inspection at the office of the Commissioner of Public Works, Charlotte Amalie, St. Thomas, Virgin Islands; Tippetts-Abbett-McCarthy-Stratton, Engineers, 375 Park Avenue, New York 22, N. Y. and at their office in the Edificio Roxach, Calle No. 2, San Juan, Puerto Rico; Depuy Public Works Advisor, Office of Territories, Department of the Interior, Interior Building, Washington 25, D. C.; A.G.C. office, 1313 Congress Building, Miami, Florida; Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands, (First Floor, Western Section); Builders Exchange, 16 N.E. 6th Street, Miami, Florida; and Housing and Home Finance Agency, Community Facilities Administration, 1608 Ponce de Leon Avenue, Santurce 17, Puerto Rico.

Plans and specifications may be procured from the Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands, (First Floor, Western Section); Tippetts-Abbett-McCarthy-Stratton, 375 Park Avenue, New York 22, N. Y. and at their office in the Edificio Roxach, Calle No. 2, San Juan, Puerto Rico, upon deposit of Fifty Dollars ($50.00) which will be refunded to bona fide bidders upon the return of the plans and specifications in good condition within twenty (20) calendar days from the date of bid opening. To persons who procure plans and specifications upon the deposit of $50.00 and who do not submit a bid, one-half the amount deposited will be refunded upon the return thereto in good condition within ten (10) calendar days from the date of bid opening. No refund will be made for return after that time.

Each bid must be accompanied by a satisfactory bid security (certified check or bid bond) in an amount not less than 5% of the total bid in dollars and cents.

The Government reserves the right to accept or reject any and all bids.

DANIEL W. AMBROSE
Contracting Officer

Bids: May 26, 1959.

Contract NA-220.015

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
EXTENSION OF TAXIWAY N
PHASE III
PAVING AND UTILITIES

Sealed proposals for the construction of an extension of Taxiway N at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, May 26, 1959, at which time said proposals will be opened and read in Room 1100.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $20.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115 where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, May 7, 1959.

Bids: May 26, 1959.

Contract NYA-120.006

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
SALE AND ERECTION OF TEN FUEL TANKS

Sealed proposals for the sale of ten fuel storage tanks for the expansion of the bulk fuel storage system at New York International Airport and for the erection thereof will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, May 26, 1959 at which time said proposals will be opened and read in Room 1100.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $20.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115 where the documents will be furnished.

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THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, May 7, 1959.

OFFICIAL PROPOSALS

Bids: May 14, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 8 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 14th day of May, 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 333 Broadway, Albany 1, New York						
Albany	FASH 59-8	Albany South Side Route, Pt. 1 City of Albany–Fuller Road Alternate Proj. U-1142-1)	0.56	9" Cem. Conc. Pavt. 26'-24' Wide	$26,000 Plans $5	$468,000
Schenectady	FATC 59-1	City of Schenectady—Crosstown Conn. FAC 57-18 Schenectady Crosstown Conn. Pt. 2 Fash 57-20 Proj. U-323-16	1.99	Traffic Signal Devices	$5,500 Plans $5	99,000
Warren (Int. Tour. Rte. 87	FISH 59-9	Interstate Route 502 Hudson River to Gurney Lane) Proj. I-1119-27	7.32 (6.82 Ave.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide = 7.25 Mi. Miscell. Work = 0.07 Mi. Ave. = 2.19 Mi. Cem. Conc. Pavt. 1.72 Mi. Asp. Conc. Pavt. and 2.41 Mi. Bit. D.S.T. Gravel; 10 Hwy. Sep. Struct. Comp. I-Beams 3 Sp. 130', 3 Sp. 130', 3 Sp. 126.5', 3 Sp. 126.5', 4 Sp. 214.5', 3 Sp. 127.1', 3 Sp. 127.1', 5 Sp. 272.4', 3 Sp. 136' and 3 Sp. 133'	$108,000 Plans $10	7,430,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 N. Genesee Street, Utica 1, New York						
Hamilton (Rte. 10	RC 59-36	Long Lake–Handet, S.H. 9015 Grove–Blue Mountain Lake, S.H. 8301	4.50	Asphalt Concrete Type 1A Pavt.	$7,500 Plans $5	138,000
Herkimer (Rte. 28	RC 59-37	Herkimer–Middleville, S.H. 460 Middleville Village, S.H. 869 Middleville Village & Newport Village, S.H. 5004	6.00	Asphalt Concrete Type 1A Pavt.	$10,000 Plans $5	184,000
Madison	FASS 59-12	New Woodstock–Lincklaen Ctr. Rd. No. 52 Proj. S-506-1)	5.47	Bit. Double Surf. Treat. Pavt.	$14,000 Plans $5	259,000
Oneida (Rte. 5)	RC 59-38	Kirkland–New Hartford, S.H. 9295 Utica–Oneida Castle Pt. 1, S.H. 250 New Hartford Village, S.H. 5052	2.07	Asphalt Concrete Type 1A Pavt.	$7,500 Plans $5	145,000
DISTRICT No. 3, Lloyd E. Towlson, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
ONONDAGA	FAC 59-4	City Syracuse–Bear Street Arterial Highway Project U-4154-1)	0.78	Asphalt Concrete Type 2A Pavt., Comp. Steel Girder Bridge 5 Spans—Total 501'	$66,000 Plans $5	1,197,000
DISTRICT No. 6, James H. Thomas, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Allegany (Rte. 244)	RC 59-39	Belmont–Phillips Creek, Pt. 1, S.H. 1539) Belmont–Phillips Creek, Pt. 2, S.H. 8375 Phillips Creek–Alfred, S.H. 8375	11.61	Asphalt Concrete	$26,000 Plans $5	477,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 317 Van Dyke Street, Watertown, New York						
Franklin (Rte. 3 & 365)	RC 59-34	Wawbeek–Saranac Lake, Pt. 2 & 3, S.H. 8467) Wawbeek–Saranac Lake, Pt. 1, S.H. 8491	11.57	Asphalt Concrete Type 1A Pavt.	$22,000 Plans $5	393,000
St. Lawrence	CBRA 59-5	U. S. Approach to the Ogdensburg Bridge	0.73 (0.23 Ave.)	Asphalt Conc. Ty. 1A Pavt. = 0.93 Mi., 10" Cem. Conc. Pavt. Var. Wide = 0.03 Mi.	$20,000 Plans $5	368,000
DISTRICT No. 8, Kurt G. Ruch, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Columbia (Rte. 23	I.S.P. 59-1 RC 59-30	Taconic State Parkway, Sect. 9C & 9D) Rte. 23 to Rte. 203) Harlemville–Millerville, S.H. 1240 Chatham–Spencertown, S.H. 546	11.92 (4.53 Ave.)	9" Cem. Conc. Pavt. 8 Var. Wide = 1.30 Mi. Asph. Conc. Pavt. = 1.47 Mi. Gravel with Calc. Chloride Treat. = 0.43 Mi. Grad. & Drain. = 11.15 Mi. 1 RR Sep. Comp. I-Beam 3 Sp. 161.9' 1 Hy. Sep. Comp. I-Beams 2 Sp. 136.5', 3 Sp. 122', 3 Sp. 133.1' and 3 Sp. 119.3' (Ave.) 1 Hy. Sep. R.C. Rig. Frame 105' 1 Br. Comp. I-Beam 52' 1 Br. Reinf. Conc. Box 55.5' 1 Br. Reinf. Conc. Slab 30'	$190,000 Plans $10	6,543,000
Ulster (Rte. 9W	RC 59-31	Old Post Road, S.H. 330 Old Post Road Pt. 4, S.H. 5305	3.78	Asphalt Concrete Pavt.	$12,000 Plans $5	230,000
DISTRICT No. 9, Joseph C. Ferguson, District Engineer, 71 Frederick Street, Binghamton, New York						
Sullivan (Rte. 17 & 52)	I.C. 59-2	Monticello–Liberty, Pt. 2, S.H. 5022 Intersection with S.H. 1008		Furnishing & Erecting Traffic Signals	$1,500 Plans $5	28,000
DISTRICT No. 10, M. J. Cook, District Engineer, 25 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Tour. Rte. 95	FHD 59-1	Interstate Route Connection 511 Bruckner Expressway–Eastern Boulevard (Pelham Bay Park) Sect. 2, Cont. 1) Eastern Blvd. to New England Thruway Sect. 2, Cont. 1 and Throgs Neck Expressway Connection Project I-1008-22)	3.46 (3.40 Ave.)	9" Cem. Conc. Pavt. (Cath. Black) 2 @ 36' Var. Wide = 1.46 Mi. Access. = 1.08 Mi. Cem. Conc. Pavt. & 3.72 Mi. Steel Asphalt Pavt. 6 Hy. Sep. Comp. W-I Beam 2 Sp. 124', 2 Sp. 127.1', 2 Sp. 143.5', 2 Sp. 131.5', 2 Sp. 132.5 and 1 Sp. 60.2' 1 Ped. Overpasses I-Beams 5 Sp. 103', 3 Sp. 103.2', 3 Sp. 277.1' and 6 Sp. 302.1'	$135,000 Plans $10	$11,547,000
Nassau & Suffolk (Rte. 106, 112 & 27	FAR 59-35	Jericho–Oyster Bay, S.H. 9021 Port Jefferson–Oram, S.H. 9024 Yaphank–Southampton, S.H. 1274 Port Jefferson, S.H. 5001, S.H. 5352 I and 3)	1.10	Drainage Facilities	$19,000 Plans $5	230,000
Nassau & Suffolk	SAGSP RC 59-1 SMSP RC 59-1 SSP RC 59-2 NSP RC 59-1	Northern State Parkway, Section Parkway, Sunken Meadow Spur State Parkway, Sunken Meadow Spur Parkway and Southern State Parkway	30.05	Landscaping and Misc. Work	$14,000 Plans $5	257,000
Suffolk	RP 59-71	Ocean Beach, Town of Islip	1.00	Beach Protection, Artificial Beach Nourishment	$1,000 Plans $10	73,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the Federal-Aid Highway Act of 1956, being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 220 (Prevailing Rate of Wages) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted on a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
STATE OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: June 5, 1959.

City of New Rochelle, New York
Improvements to
Municipal Incinerator

(Project No. 14-426-PI)

CONTRACT I
GENERAL CONSTRUCTION
CONTRACT II
FURNACE CONSTRUCTION
CONTRACT III
CHIMNEY CONSTRUCTION
CONTRACT IV
PLUMBING CONSTRUCTION
CONTRACT V
HEATING & VENTILATING CONSTRUCTION
CONTRACT VI
ELECTRICAL CONSTRUCTION

NOTICE TO BIDDERS

1. Sealed proposals for performing all work in connection with the General Construction, Furnace, Chimney, Plumbing, Heating & Ventilating and Electrical Construction, Contracts I, II, III, IV, V, and VI, respectively, are hereby invited and will be received by the DEPUTY DIRECTOR OF PUBLIC WORKS of the CITY OF NEW ROCHELLE, N. Y. at City Hall Annex* until 11:00 AM E.D.S.T. June 5th, 1959, then publicly opened and read immediately thereafter. Contractors may submit proposals for any one or more contracts.

* 2nd Floor
30 Church St.
New Rochelle, N. Y.

2. The work will consist of providing all labor, materials, equipment and incidentals and performing all operations required for the construction of improvements to the Municipal Incinerator including all General Construction, Furnace, Chimney, Plumbing, Heating & Ventilating and Electrical Construction. The furnaces & appurtenances may be inspected on Monday mornings, between 7:00 A.M. and 9:00 A.M.

3. Drawings, specifications, bidding and contract documents may be examined at the office of the Engineers, Leonard S. Wegman Co., Grand Central Terminal, New York 17, N. Y. or at the office of the Incinerator Superintendent, at the Incinerator, Foot of Main Street and obtained from the Bureau of Engineering, 28 Wildcliff Drive, New Rochelle, N. Y. at a deposit of $75.00 per set. Full refund will be made to actual bidders for return of one set in good condition and a 50% refund for return of each additional set in good condition returned within two weeks after closing date for receipt of bids.

4. Each bid must be accompanied by a Bid Security in the form of an acceptable Bidder's Bond or a certified check payable at sight to the CITY of New Rochelle, N. Y., in an amount not less than Five Per Cent (5%) of the amount of the total bid. Such Bid Security will be returned to all except the three lowest formal Bidders within five (5) days after the formal opening of bids, and the remaining Bid Securities will be returned within two (2) days after the OWNER and the accepted Bidder has executed the contract, or if no contract has been executed, within thirty (30) days after the date of opening of bids, upon demand of Bidder at any time thereafter, so long as he has not been notified of acceptance of his bid. If the Bidder to whom the contract is awarded does not execute the contract and furnish the required bond within fifteen (15) days after receipt of notice of award, the aforesaid Bid Security shall be paid to the City of New Rochelle, N. Y.

5. The Owner reserves the right to reject any or all bids, to waive any informality in bids received and to accept that bid which in its judgement best serves the interests of the City.

CITY OF NEW ROCHELLE, NEW YORK
BY: ARTHUR F. JONAS, P.E.
DEPUTY DIRECTOR OF PUBLIC WORKS

Dated 5-21-59

Bids: June 30, 1959.

Republic of Columbia

EMPRESAS PUBLICAS DE MEDELLIN

Engineering construction firms experienced in the construction of earth-fill dams are invited to request the forms for submitting their qualifications for bidding on a contract for the construction of the Troneras Dam, on the Rio Guadalupe, near the Hydroelectric Plant located 62 miles from Medellin. The main specifications are:

Earth-fill: 26,500,000 cubic feet
Length of crest: 1,200 feet
Maximum height: 115 feet
Outlet tunnel: 1,180 feet long and 13 ft. in diameter.

The qualifications should be submitted on or before June 30, 1959.

For full particulars address:

Empresas Publicas de Medellin,
P. O. Box 940,
Medellin, Colombia.

Bids: May 21, 1959

Power Authority of
the State of New York

NIAGARA-ADIRONDACK TIE LINE

ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY
OF
345 KV TRANSMISSION LINE TOWERS
FOR
NIAGARA-ADIRONDACK
TRANSMISSION LINE

SPECIFICATIONS NO. PA-9-100
CONTRACT NO. ALP-100

NOTICE TO CONTRACTORS. The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery f.o.b. applicable destination of structural steel for 345 kv transmission line towers for the portion of the Niagara-Adirondack Transmission Line which extends from Niagara County to Montgomery County, New York, until 11:30 A.M. Eastern Daylight Saving Time, on the 21st day of May, 1959, at the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for the design, testing, fabrication and delivery of structural steel weighing approximately 7,000 tons for the transmission line towers, including body and leg extensions and foundation steel. Delivery will be required commencing on or before August 1, 1959 and completed on or before October 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of ten ($10.00) dollars per initial set of contract documents, and five ($5.00) dollars per set for additional sets, no part of which shall be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Ulp, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

U. S. Government

INVITATION FOR BIDS: Sealed bids, in triplicate, will be received at the office of the Regional Director, CFA, Housing and Home Finance Agency, OA, Room 505, 346 Broadway, New York 13, N. Y. until 2:00 o'clock P.M. (E.D.S.T.) on the 19th Day of May 1959, and then publicly opened and read aloud, for furnishing all labor and material and performing all work for the construction of an Elementary School Addition at Fort Jay, Governor's Island, New York, including General Construction, Heating and Ventilation, Plumbing, Electrical Work and Fixtures and Site Work. The Instructions to Bidders, Form of Bid, Form of Contract, General Conditions, Specifications, Plans, Form of Bid Bond, Performance and Payment Bond may be examined at the offices of the project architect Knappe and Johnson, 2110 Northern Boulevard, Manhasset, New York and Two Overhill Road, Scarsdale, New York, or at the office of the Regional Engineer, Housing and Home Finance Agency—OA, Room 814—346 Broadway, New York City, N. Y., and copies thereof obtained at any of said offices upon payment of $7.50 for each complete set of documents, which fee shall not be refunded and the documents shall remain the property of the prospective bidders. Such fee shall be in the form of a certified check, bank cashier's check or postal money order made payable to the Housing and Home Finance Agency—OA.

Ralph B. Cornell
Regional Director
Community Facilities Activities

General Services Administration, Public Buildings Service, Washington, D. C., April 28, 1959—Sealed bids for construction (except passenger elevators) of United States Post Office, Etc., Portsmouth, Virginia, will be received until 2:00 PM EDT, June 2, 1959, in Rm. 7128, GSA Regional office Building, 7th & D Sts., S. W., Washington 25, D. C., and then publicly opened in Rm. 7128 at the above address. Upon request, Public Buildings Service, Rm. 1306, GSA Bldg., 19th & F Sts., N. W., Washington 25, D. C., Phone EXecutive 3-4900, Ext. 2397, will furnish three sets of bidding material to General Contractors interested in bidding the complete project. Three additional sets may be obtained by depositing $100.00 per set. One set of drawings and specifications will be supplied to each principal subcontractor, as determined by the Service, upon receipt of deposit in the amount of $100.00. Deposits will be refunded for such sets if returned in good condition within fifteen days after bids are opened. Checks or money orders for deposits or furnished as bid guaranty must be made payable to the General Services Administration. One set of drawings and specifications will be furnished to builders' exchanges, chambers of commerce and other similar organizations, with the understanding that the set will be retained on their premises and made available for inspection by any interested subcontractor or material firm. Commissioner of Public Buildings, General Services Administration.

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until 1:00 PM, E.S.T. June 12, 1959 and at that time publicly opened for the following work: Construction of the substructure of Balboa Bridge, consisting of 13 piers and 2 abutments, as well as two reinforced concrete grade separation structures for approach roadways. Approximately 30,000 cubic yards of concrete, 1200 tons of reinforcing steel, 8000 linear feet of 36 inch diameter concrete caissons will be required. Plans and specifications can be obtained upon payment of $5.00 deposit, either U. S. Money order or certified check payable to Panama Canal Company. Data available for examination and distribution in Procurement office, Panama Canal Company, 21 West St., New York 6, N. Y. For further information call Bowling Green 9-6580, extension 73. Reference PC 59-66

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5190) will be received at Cody, Wyoming, until 10 a.m., Mountain Standard Time, June 4, 1959, for furnishing labor and materials for Stage 01 Additions to Boysen Switchyard and Additions to Pilot Butte Switchyard, Transmission Division, Wyoming, Missouri River Basin Project, location near Thermopolis and Riverton, Wyoming. Principal items are: Schedule No. 1, Boysen Switchyard, lump sum, constructing concrete foundations; lump sum, alterations to existing steel structures, 2 breakers, installing 115-kilovolt, 2,500 mva, power circuit breakers; Schedule No. 2, Pilot Butte Switchyard, 5,475 cu yds excavation; lump sum, constructing addition to powerplant structure, 95,000 pounds furnishing and erecting steel structures, 1 transformer, installing 300-4000 kva, 3 phase power transformers, and other work. Completion time 255 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana, P. O. Box 1189, Cody, Wyoming, or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5192) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, June 11, 1959, for furnishing four (4) 40-foot by 52-foot radial gates for Glen Canyon Dam Spillways for Colorado River Storage Projects, Arizona-Utah. Delivery is desired within 330, 390, 450, and 510 days, respectively. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

Bids: May 21, 1959

Power Authority of the State of New York

NIAGARA POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY
OF
INTAKE GATES AND STOPLOGS
FOR
TUSCARORA POWER PLANT
SPECIFICATIONS NO. PA-N-23018
NIAGARA CONTRACT NO. NP30

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the furnishing and delivery thereof F.O.B. destination, Niagara Falls, Niagara County, New York, of the Intake Gates and Stoplogs for the Tuscarora Power Plant until 10:30 A.M. Eastern Daylight Saving Time on the 21st day of May, 1959, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating, furnishing and delivery thereof of approximately 1,245 tons of structural steel intake gates and stoplogs for the Tuscarora Power Plant.

Delivery of the above items will be required beginning September 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the office of the Engineer, Ubl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee (Certified Check or Bid Bond) will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: June 2, 1959

Power Authority of The State of New York

ADVERTISEMENT FOR PROPOSALS
FOR THE
FURNISHING AND DELIVERY
OF
INTAKE GATE AND STOPLOG GUIDES, SILLS AND HEAD BEAMS
FOR WATERWAYS
SPECIFICATIONS NO. PA-N-23026
NIAGARA CONTRACT NO. NP 29

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the furnishing and delivery thereof f.o.b. destination, Niagara Falls, Niagara County, New York, of the intake gate and stoplog guides, sills and head beams for the Waterways intake structure until 10:30 A.M. Eastern Daylight Saving Time on the 2nd day of June, 1959, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating, furnishing and delivery thereof of approximately 332 tons of embedded structural steel guides, sills and head beams for the intake gates and stoplogs for the waterways.

Delivery of the above items will be required on or before October 1, 1959.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at The Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the office of the Engineer, Ubl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee certified check or bid bond) will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: May 21, 1959

Contract O & M-527

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
RESURFACING, SEALCOATING, AND STABILIZATION OF CERTAIN RUNWAYS, TAXIWAYS, AND ADJACENT AREAS

Sealed proposals for furnishing all labor, material and equipment for the resurfacing, sealcoating, and stabilization of certain runways, taxiways, and adjacent areas at Newark Airport in Newark, New Jersey will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 909, 111 Eighth Avenue, New York 11, New York, until 11:00 AM, Thursday, May 21, 1959, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, and you will be furnished with the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, May 7, 1959

Bids: May 28, 1959

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
LANDSCAPING
AND
CONSTRUCTION OF ROADS, WALKS AND TERRACES
AT LONG SAULT DAM, OVERLOOKS, BEACHES
AND OTHER LOCATIONS
NEAR MASSENA
ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. PA-5-11041
ST. LAWRENCE CONTRACT NO. 53

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for Landscaping and Construction of Roads, Walks and Terraces at Long Sault Dam, Overlooks, Beaches and Other Locations near Massena, St. Lawrence County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 28th day of May, 1959 at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The estimated quantities of the principal items of work are as follows:

Foundation Course Gravel	4,670 cu. yds.
Bituminous Macadam	1,030 cu. yds.
Asphaltic Concrete Pavements	610 cu. yds.
Concrete in Curbs & Structures	144 cu. yds.
Concrete Terraces and Walks	320 cu. yds.
Topsoiling	101 acres
Seeding	156 acres

All bituminous paving and all concrete work shall be completed on or before September 1, 1959, and all other work under the contract shall be completed on or before November 1, 1959.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the offices of the Engineer, Ubl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: May 14, 1959

Notice to Contractors

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law; sealed proposals will be received until 10:30 a.m. Advanced Standard Time on May 14, 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 503-1-7, NEWBURGH - BEACON BRIDGE APPROACH, ROUTE 9W TO ROUTE 17K, PROJECT 1-4131, ITEM 82, ORANGE COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-138.

Maps, plans and specifications may be examined and obtained at the following offices.

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.

(b) Mr. Kurt G. Rauer, District Engineer, New York State Department of Public Works, Pleasant Valley Road, Poughkeepsie, New York.

(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $43,450.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the State of New York, Commissioner of Taxation and Finance for the sum of $2,500.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

MAY 21ST ISSUE CLOSES MAY 12TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take 1/2 of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No., Classified Ad. Dept. of this publication, 330 W. 42nd St., N.Y. 36, unless otherwise specified.

NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Asst. Prof. of Civil Engineering to teach fluid mechanics. Applicant must have MS in CE. Write to John A. Oakey, N. D. State College, Fargo, N. D., giving personal record and minimum acceptable 9 months salary.

Graduate Civil Engineer with 3 to 4 years highway experience for permanent position in West Virginia. Duties include office work and supervision of survey. Send resume and salary requirements to P-1555, Engineering News-Record.

Public Works Director—Saratoga, Calif. Population 15,276; 45 miles of road; requires registered California Civil Engineer; 5 years general municipal experience. Salary—$700. to $800. monthly. All applications listing qualifications in writing only to City Administrator, Box 337, Saratoga, California.

Career opportunity for young graduate Chemical Engineer to learn cement industry. Opportunity for advancement with expanding manufacturer. Desire man interested in eventually assuming top management position. Write giving education past experience (if any) and other personal data. P-1554, Engineering News-Record.

Experienced Architects and Architectural Draftsman. Excellent opportunity with established consulting firm in Middle West. State education, experience and required salary. Reply to P-1545, Engineering News-Record.

Resident Engineer wanted for half-million dollar intercepting sewer (including three lift stations) project, due to start immediately. Must be able to take out the work and prepare estimates. Reply stating experience, salary desired, and when available to Fred A. Grier, Jr., Chairman, Salisbury Incinerator and Sewage Treatment Plant Commission, Salisbury, Maryland.

Instrument Eng.: Design engineer with experience on actual design and installation of process pipe controls systems. High and low pressure air, boiler and steam systems, and related. Top salary for right man. A small firm where merit won't get buried. Call or write: D. F. Gordon, 210 West 28th Street, Baltimore 11, Maryland. Tel.—TUxedo 9-0015.

Civil Engineer—Graduate with about 3 to 5 years experience. Theoretical and supervisory work on structures in consulting engineer's office in Northeast New York. Forward detailed resume, expected salary, and date of availability to Summers, Munninger & Molke, 116 Washington Avenue, Albany, New York.

Mech. Eng: Capable handling all phases heavy equipment and process piping including direct field supervision on site $14,000 to 18,000 year starting salary, plus job bonus. Permanent connection for a capable man with small, aggressive well established company. First job assignment on East Coast. Immediate employment. Call or write: D. F. Gordon, 210 West 28th Street, Baltimore 11, Maryland. Tel: TUxedo 9-0015.

Civil engineers needed with two to five years experience in the municipal engineering consulting field. Permanent positions open with long established firm. Location in small college community in Colorado. Salary commensurate with experience and qualifications. Send complete resume of education and experience. Replies confidential if requested. P-1561, Engineering News-Record.

• POSITIONS VACANT

Experienced superintendent and foreman for highway construction work in Conn. Excellent opportunity for advancement. Call Hartford, Conn., JAckson 5-3203, Charter Oak Construction Co., Inc.

Resident Engineer Wanted. Graduate engineer with experience in supervision of construction on water, sewerage, steam power and or building construction. Location generally midwest, but assignments may be to other areas of U. S. Established midwest consulting engineering firm. Reply in detail to P-1293, Engineering News-Record.

Associate and Assistant Professors for fields of advanced dynamics, advanced strength and elasticity. Also have opening for graduate student as half-time instructor. Engineering Mechanics Dept., Kansas University, Lawrence, Kansas.

Sanitary Engineer to direct Division of Sanitation with generalized program in well established County Health Department. Population: 82,000. Liberal vacation, sick leave, retirement, longevity benefits. Cattaraugus County Health Department, 302 Laurens Street, Olean, New York. Salary: $6,161-$7,620.

Graduate Engineer for key position. Minimum of 5 years experience in estimating, purchasing and expediting in heavy, commercial and industrial building construction. Must have administrative ability. Location in Nebraska-Kansas area. Send complete resume, references and recent photograph. P-1559, Engineering News-Record.

Plant Manager—Structural fabricating shop Pittsburgh area. Must know labor relations, shop and drawing room practice. Salary open. Reply in detail to P-1611, Engineering News-Record.

Two Teachers, Department of Mechanics and Electricity. One, department head, Ph.D. mechanical engineering preferred. Degree in physics for second position, B.S. or M.S. also considered. Teach mechanics, strength of materials, thermodynamics, applied electricity, general physics. Salary and rank dependent on qualifications. Apply President, Montana School of Mines, Butte, Montana.

Experienced Estimator to relocate in Minnesota, capable to estimate heavy construction and highway projects. Bridge, concrete, steel. Salary open. Submit resume and requirements. Permanent position with highly responsible firm. Address: P-1597, Engineering News-Record.

Superintendent wanted for sewer, water, grading and concrete jobs of small and medium size. Ability to estimate and expedite as well as civil engineer training desirable. Salary commensurate with ability to produce. Locate Illinois. Established company. Please furnish resume stating education, experience and salary requirements. P-1529, Engineering News-Record.

The City of Wilton Manors will accept applications for the position of Director of Public Works. Preferably a graduate civil engineer. Must have experience in the construction and maintenance of municipal works, including water distribution systems, pavement and drainage projects. Duties include supervision of water department, approval of subdivision development plans, etc. Mail applications to the office of the City Clerk, 524 N. E. 21st Court, Wilton Manors, Fort Lauderdale, Florida.

Man with good knowledge of construction equipment application to work in Sales Office of construction equipment dealer located in Albany, N. Y. Reply in detail P-1601, Engineering News-Record.

• POSITIONS VACANT

Estimator — Engineer: Construction firm. Highways, Asphalt, Sewers. Interested in permanently employing an experienced engineer-estimator with some geological background for the Kansas-Oklahoma region. Submit detailed resume and availability. Box 1002, Kansas City 41, Missouri.

Wanted experienced sewer foreman and concrete paving foreman. Phone DE 6-0118, E. A. Meyer Construction Co., Lake Bluff, Ill.

General Sup't. to take full charge of Highway Project, including Excavation and Rock in New England. Reply, stating experience, etc., to P-1602, Engineering News-Record.

Construction Supervisors—Thorough knowledge of building construction, utilities and paving. Background of minimum of 15 years. Field work essential. Projects are located in New Jersey, Pennsylvania and Maryland and cover extended expansion program. Submit resume in detail listing projects handled, location and magnitude. State salary required. All replies will be treated in strict confidence. P-1616, Engineering News-Record.

• POSITIONS WANTED

Construction Superintendent—experienced industrial, chemical, commercial. Middle Atlantic States preferred. PW-1410, Engineering News-Record.

Controller—Competent management accountant experienced finance and control multi-million dollar construction contracts, knowledge costs, budgets, taxes, systems and procedures, all types contracts, corporate organizations and joint ventures. Head Office and field operations. PW-1405, Engineering News-Record.

Resident Engineer or Architect's Superintendent—experienced, competent. PW-1424, Engineering News-Record.

Construction Manager. Proven capability. $25,000.00 minimum. Available immediately. PW-1422, Engineering News-Record.

Structural Engineer—Extensive National Experience. Registered. Desires executive position or partnership. Midwest or western location. PW-1419, Engineering News-Record.

Paving & Materials Engr., BCE, SM, 4 overseas. Airfield projects, controlling, soils, asphalt, concrete, surveying, independent responsibility, managed personnel. PW-1417, Engineering News-Record.

Prestressed Concrete Plant Manager—MSCE Experienced Engineer capable of designing, building and managing an efficient prestressed concrete plant. PW-1418-2, Engineering News-Record.

Project Engineer: Location and construction of railways, highways, bridges, tunnels, docks, townsites, etc., in Latin America or south. Fluent Spanish. Technical ability and experience rarely equalled. Highest references. PW-1395, Engineering News-Record.

Supt. or Foreman, General Construction. PW-1521, Engineering News-Record.

Field-office Engineer—layout, supervision computations and drafting. Experienced in Municipal and Heavy Construction. Desires to relocate. P. O. Box 53-296, Miami, Fla.

Project Manager. Proven 20 Year Record heavy construction, U. S. and foreign. PW-1561, Engineering News-Record.

Civil Engineer, 29, Office, Field Experience, General Contractor. PW-1556, Engineering News-Record.

(Continued on the following page)

NEEDED NOW ELECTRONIC ENGINEERS In Alaska

$5430 to $8810 per annum plus 25% cost-of-living allowance. Enjoy a career in the Federal Civil Service with paid annual and sick leave, retirement benefits, paid transportation to Alaska and return for leave purposes. Positions in Federal career service. Contact:

Federal Aviation Agency
P. O. Box 440 Anchorage, Alaska

FACTORY REPRESENTATIVE

World's largest manufacturer of trenching machines is expanding force. Opportunity for continued growth. Excellent remuneration and expenses. Requires sales experience such as construction and road equipment, shovels and cranes, materials handling equipment, farm implements, etc. Considerable travel involved and possible relocation. All replies held in strictest confidence. Send detailed resume.

Attention: L. M. Dunn
THE CLEVELAND TRENCHER CO.
20102 St. Clair Avenue • Cleveland 17, Ohio

RESEARCH & DEVELOPMENT ENGINEER

A nationally known manufacturer of consumer goods has an excellent research and development position available in its Tin Can Division for an experienced engineer.

Applicants must be familiar with types of The various types of metal containers manufactured today (food and non-food cans), have an interest in handling the research problems involved in the development of new types of metal containers and be acquainted generally with the various types of tin can manufacturing equipment which is being used throughout the tin can industry. Will also have the opportunity to handle many of the problems involved in the selection, purchase, layout and installation of new tin can manufacturing equipment, work on special development projects and act in an advisory capacity from time to time to departmental supervisors, company officials and customers.

In addition to offering very interesting, challenging work this position is one of promotional opportunity. An excellent employee benefit program is also available. Please submit complete resume of educational background, work history, past earnings, present salary thinking and other information. All replies will be held in strictest confidence.

P-1518 Engineering News-Record
330 W. Michigan Ave., Chicago 11, Ill.

WANTED IMMEDIATELY HEAVY CONSTRUCTION SUPERINTENDENT

Experience in New York State road work preferred but not essential. Should be well grounded in excavation, paving, drainage structures, etc. Excellent opportunity for a take charge man who can produce positive results in bidding & executing highway work. Salary open. Write or telephone.

Daniel McConville, Jr.
McCONVILLE, INC.
Post Office Box 297 Ogdensburg, New York
Telephone 724

PROFESSIONAL OPPORTUNITY

The Department of Sanitary Engineering of the District of Columbia is accepting applications for the positions of Sewage Treatment Plant Shift Superintendents.

Desired qualifications include college degree in sanitary or civil engineering and previous experience in sewage treatment plant operation. The starting salaries for these positions are $4,490 to $7,510, depending on experience.

This is a Civil Service position as a Shift Superintendent in a high-rate activated sludge treatment plant of a design capacity of 290 mgd. Benefits include paid annual leave and sick leave, group insurance, retirement and other employee benefits.

Those interested may send a complete summary of education, experience and personal data to Mr. Hugh A. Schreiber, Superintendent, D. C. Sewage Treatment Plant, 5000 Overlook Avenue, S. W., Washington 24, D. C.

ENGINEERS

Civil
Hydraulic
Structural

Permanent openings at grades:

GS 5, $4490 per annum
GS 7, $5430 per annum
GS 9, $6285 per annum
GS 11, $7510 per annum

for duty with Engineering Division, Rock Island, Illinois

Appointments will be made under Federal Civil Service procedures.

Mail Resume to

District Engineer
US Army Engineer District, Rock Island
Clock Tower Building
Rock Island, Illinois

DESIGNERS—McKEE

Has immediate openings for experienced designers of

PRESSURE VESSELS
HEAT EXCHANGERS
HEATERS

For employment at our Cleveland offices.

Send detailed resume to

G. VICTOR HOPKINS

ARTHUR G. McKEE & Co.
2300 Chester Ave., Cleveland 1, Ohio

RIGHT OF WAY

Experienced in Illinois • Read and write legals, compute and prepare plats for property acquisition.

MACCABEE, CAMPBELL & ASSOCIATES
173 West Madison St., Chicago 2, Illinois

ENGINEER

A long established firm of hydro engineers has an opening for a young man with Master's Degree in Structural Engineering. Some experience in arch dam design or advance structural analysis required. Computer programming experience desirable. Must be a capable man willing to improve by outside study. Please send complete personal and experience record to Personnel Manager.

HARZA ENGINEERING COMPANY
400 W. Madison St. Chicago 6, Illinois

MANUFACTURERS REPRESENTATIVES

Do you now call on contractors supply jobbers? One of America's oldest mechanical rubber goods manufacturers offers you a complete contact line of hose, belting, Pile Driver, Steam, Air, Water, suction, etc. A few desirable territories still open. State lines covered and your position in first letter. Replies confidential. Write

RW-1509 Engineering News-Record
Class. Adv. Dept., P. O. Box 12, N. Y. 36, N. Y.

• POSITIONS WANTED
(Continued from page 109)

Architectural Field Supervisor. 8 years experience in all branches of construction, including hospitals, schools and institutions. Will relocate for permanent position. Available immediately. PW-1558, Engineering News-Record.

Purchasing Agent—Subcontracting. 8 years experience in all phases of heavy construction, large buildings, etc. Will relocate for permanent position. Available immediately. PW-1552, Engineering News-Record.

Contractor's Engineer—graduate CE licensed Heavy Construction and Buildings. Wide experience in estimating, purchasing, field supervision and project management. Bid to completion. PW-1574, Engineering News-Record.

Construction Bookkeeper and General office man, open for position. Life experience in Bookkeeping, cost accounting, payroll and other phases. Have had experience in Latin countries which is preferred. Also have const. account code Spanish, English. M. G. Waller—Box 214, Lantana, Fla.

Pilot —Commercial instrument—Production Expediter. Presently employed on Latin-American project nearing completion. Over 1,000 hours. Sober, dependable family man. Detailed resume on request. PW-1610, Engineering News-Record.

Executive, Buildings and Heavy Construction, formerly Manager for New York Contractor, open for connection where scope requires top man, fully qualified by experience, all phases of General Contracting. Minimum $20,000. PW-1591, Engineering News-Record.

Civil Engr., BSCE '51, 32, registered in Virginia, 5 years varied design, const., sales, & management experience. Interested in challenging structural design position or responsible sales position selling engineered products. Will relocate. Available immediately. Resume upon request. R. Shelton, Buffalo, N. Y. Export 2800 or PW-1609, Engineering News-Record.

Civil Engr., 34, European degree, reg. struct. engr. Ill. 5 years exp. concrete design and construction Europe and U.S.A., seeks position with Contractor (heavy constr.). PW-1614, Engineering News-Record.

Sales-Engineer: C.E. grad, age 36; 12 yrs. with steel fabricating firm. Past five years salesman in metropolitan area. Desire position with managerial future. Will relocate. PW-1582, Engineering News-Record.

Civil Engineer, BSCE, 29, 6 yrs design, construction and maintenance experience desires to join contractor or small engineering firm, Michigan or South West. PW-1588, Engineering News-Record.

Field man, young Civil Engineer graduate wants field work in some phase of construction or related engineering leading to field supervision. Location N. E. PW-1596, Engineering News-Record.

Structural Engineer. Age 34. A.M.A.S.C.E., M.S.H.E., P.E., Certificate of National Council. 10 Years experience in industrial, commercial, and hydraulic structures. Utilized electronic computers in solving indeterminate structures. Requires responsible permanent position. PW-1597, Engineering News-Record.

(Continued on the following page)

• *POSITIONS WANTED*
(Continued from page 110)

Construction Supt. Building Construction. Experience of 25 years includes bidding, estimating and purchasing of subs and materials. PW-1623, Engineering News-Record.

Construction Manager and General Superintendent, 25 years experience of bidding to completion on public and industrial buildings. Desire permanent relocation. PW-1617, Engineering News-Record.

CIVIL ENGINEER

Rapidly growing company offers position in sales to assist highway product manager in national headquarters of established manufacturer of products for the building and highway construction industry. Minimum of 2 years experience in sales of highway products or in state highway department. Responsibilities include sales administrative and technical duties. Unusual opportunity for man who likes challenging, diversified work in engineering sales. Liberal salary commensurate with capabilities. Excellent pension, insurance and bonus plan. Midwestern location with excellent living conditions. Please reply, stating education experience and other personal data.

P-1628, Engineering News-Record
330 W. Madison St., Chicago 11, Ill.

• *BUSINESS OPPORTUNITY*

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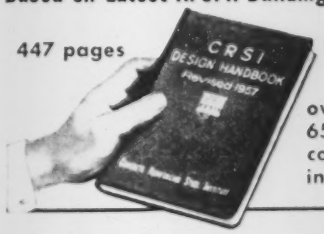

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Make It Plain

BEFORE A LABOR BILL IS PASSED, Congress should make certain that it contains language protecting the separate election rights of professional employees in the construction industry. The matter has been called to the attention of the House Subcommittee on Labor-Management Reform Legislation by the National Society of Professional Engineers, so there is no excuse for its being overlooked.

Actually the Senate committee, which has finished its version of a bill, recognized the special rights of professional employees in its report, but included no germane language in the bill itself. This is not adequate.

The bill should specifically spell out the safeguards which are now in the Taft-Hartley Act. Otherwise professional employees in the construction industry are going to find themselves in unions not of their own choosing and in no wise dedicated to professional needs or objectives. Any bill that permits pre-hire contracts or the certification of unions without employee elections should make it plain that the present self-determination rights of professional employees cannot be destroyed.

Civil Engineering's Place

THE EDUCATORS to whom construction must look for its engineers—principally civil engineers—can learn something from the Air Force and the Navy. The Air Force has quit calling its officers charged with construction and maintenance "Installations Officers"; it now calls them "Civil Engineering Officers." The Navy, with its long established Civil Engineering Corps, has considered changing the Bureau of Yards and Docks to Bureau of Civil Engineering. The House actually passed a bill to effect such a change last year.

Both moves are intended to give the agencies more accurately descriptive titles. But both name changes are also expected to give the agencies titles connoting greater prestige, offering greater appeal. In the Air Force and the Navy—and in the Army's Corps of Engineers—civil engineering is apparently still considered a highly respectable profession.

In the colleges, on the other hand, there appears too great a tendency to accept apathetically the swing of student enrollment away from civil engineering and toward electrical, mechanical, or the newer chemical or nuclear branches of engineering. Perhaps some educators do not consider this a bad thing. But it is. Perhaps they think nothing can be done about it. But it can.

Just as the Air Force was having trouble attracting good officers to its construction and maintenance positions, and holding them in this vital work, colleges have been seeing more and better students enrolling in other than civil engineering programs. And just as the Air Force hopes its new Civil Engineering posts will be considered the kind of good duty that can attract and hold good men, the educators can serve the construction industry by selling it to students as a field worth entering.

They must first accept the concept that construction is indeed an industry (ENR Apr. 17, 1958, p. 196)—a big industry, a basic industry—and an engineered industry, increasingly the civil engineer's to manage.

In this ever more complex technological age, civil engineering could have new appeal, if only as the education for the sorely needed generalists among engineers—generalists who direct and coordinate efforts of the many specialists that are required.

Construction needs good engineers and will need more. Any trend toward fewer graduates in civil engineering is an unhealthy one for construction. The educators should be promoting civil engineering. And the construction industry—particularly engineers in it—should be giving them every possible reason to do so.

Serving the Entire Profession

ENGINEERS JOINT COUNCIL in 1958 moved "steadily and definitely toward maturity as the agency of cooperation among the engineering societies of the nation." These are the words of President Enoch R. Needles in his annual report, and they are amply justified by the record. EJC, now a federation of twenty societies, was set up to speak for the entire engineering profession. It did a lot of this in 1958, and laid the groundwork for much more.

By continuing to refine and emphasize its report on a national water policy, EJC kept this subject alive against the day when the powers of procrastination in this vital field must be overcome. It gave strong support to the work of its Engineering Manpower Commission, and it instituted discussions with National Science Foundation to expand the National Engineers Register. In both of these endeavors it was discharging a responsibility to engineers generally, and to the nation, which needs their services.

As to laying groundwork for future useful activity, the formation of a joint committee to study amalgamation of EJC and Engineers' Council for Professional Development is particularly significant. So are the efforts to develop organization and sponsorship for a study aimed at development of a national transportation policy. Recently, too, EJC has supported before a Congressional committee the principle of creating a Cabinet-level Department of Science and Engineering.

Each of these activities is directed in the public interest, while promoting the interest of engineers in a responsible manner. They lend support to Mr. Needles' reference to maturity. They also suggest that EJC could be even more effective if it had more financial aid from its member societies.

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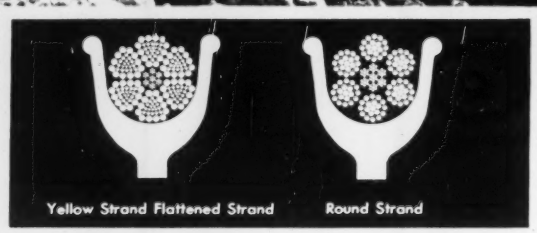

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